Name: _____ Date: _____

TEST PREP

1 Whole Numbers

25

Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Which of these is the word form for 215,078?

Ⓐ two hundred fifteen seventy-eight

Ⓑ two hundred fifteen thousand

Ⓒ two hundred fifteen thousand, seventy-eight

Ⓓ two hundred thousand fifteen and seventy-eight

2. What is the value of 6 in 563,209?

Ⓐ 600,000 Ⓑ 60,000 Ⓒ 600 Ⓓ 6

3. Which of these is the least?

Ⓐ 1,000,000 Ⓑ 999,000 Ⓒ 789,987 Ⓓ 99,999

4. Which of these is 3,000 more than 568,210?

Ⓐ 868,210 Ⓑ 598,210 Ⓒ 571,210 Ⓓ 568,510

5. Estimate 5,215 + 2,783 by rounding each number to the nearest thousand.

Ⓐ 6,000 Ⓑ 7,000 Ⓒ 8,000 Ⓓ 9,000

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Write your answer in the space given.

6. **a.** Write 6,326,508 in word form.

_____

b. Complete to express 4,781,020 in expanded form.

4,781,020 = _____ + 700,000 + 80,000 + 1,000 +

_____

Write >, <, or = in each ◯.

7. **a.** 354,819 ◯ 354,981 **b.** 1,782,356 ◯ 928,339

Estimate each sum or difference by using front-end estimation with adjustment.

8. 2,691 + 8,173 + 4,724

9. 7,685 − 3,768

Find the rule. Then complete the number pattern.

10. 2,937,045 3,437,145 _____ 4,437,345 _____

Rule: _____

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. There are 9 passengers in each mini-bus. There are 6,157 mini-buses. Estimate the total number of passengers.

12. Mr. James has 8 crates of mangoes. There are 3,548 mangoes in total. Estimate the number of mangoes in each crate.

Name: _____ Date: _____

TEST PREP 2

Whole Number Multiplication and Division

25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Multiply 65 by 80.

Ⓐ 520 Ⓑ 5,200 Ⓒ 52,000 Ⓓ 52

2. Which of these is a reasonable answer for 3,652 × 39?

Ⓐ 86,428 Ⓑ 183,428 Ⓒ 142,428 Ⓓ 242,428

3. Which of these will result in the answer 23?

Ⓐ 23,000 ÷ 10 Ⓑ 23,000 ÷ 100

Ⓒ 2,300 ÷ 100 Ⓓ 230,000 ÷ 1,000

4. Divide 4,825 by 23.

Ⓐ 29 R 18 Ⓑ 117 R 1 Ⓒ 203 R 25 Ⓓ 209 R 18

5. Evaluate (45 − 21) ÷ 8 + 2.

Ⓐ 5 Ⓑ 7 Ⓒ 8 Ⓓ 12

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Multiply. Show your work.

6. 2,356 × 700

7. 8,093 × 56

Solve. Show your work.

8. A rectangular wall measures 1,620 centimeters by 68 centimeters. Estimate the area of the wall.

Name: _____ Date: _____

9. 3,812 people are seated in a concert hall. There are 48 seats in each row. Estimate the number of rows of seats that are occupied.

10. Tom had $8,153 in his bank account. He deposited another $847 into the account. He then used all his money to buy 100 identical cameras. He sold the cameras for $150 each. How much did Tom earn from selling each camera?

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. Mr. Jensen bought a set of furniture for $5,645. He paid $500 at first. He then paid the remainder in equal payments, every month for 7 months. How much did he pay each month?

12. Jody paid $1.60 for each box of 35 beads. She has 1,400 beads altogether.

a. How much did Jody pay in all for the beads?

b. Jody repacks the beads into small boxes with 16 beads in each box. How many small boxes does she need?

Name: _____ Date: _____

TEST PREP 3

Fractions and Mixed Numbers

25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Which fraction has the same value as $\frac{3}{5} + \frac{1}{3}$?

Ⓐ $\frac{2}{15}$ Ⓑ $\frac{4}{15}$ Ⓒ $\frac{1}{2}$ Ⓓ $\frac{14}{15}$

2. What is the value of $\frac{7}{10} - \frac{3}{6}$?

Ⓐ $\frac{1}{15}$ Ⓑ $\frac{2}{15}$ Ⓒ $\frac{1}{5}$ Ⓓ 1

3. What is 25 ÷ 7 expressed as a mixed number?

Ⓐ $3\frac{4}{7}$ Ⓑ $\frac{25}{7}$ Ⓒ $2\frac{5}{7}$ Ⓓ $5\frac{2}{7}$

4. Which fraction has the same value as 0.65?

Ⓐ $\frac{65}{10}$ Ⓑ $\frac{65}{50}$ Ⓒ $\frac{13}{20}$ Ⓓ $\frac{26}{50}$

5. Mrs. Olive used $1\frac{2}{5}$ quarts of syrup and $5\frac{3}{10}$ quarts of water to make lemonade.

How many quarts of lemonade did she make?

Ⓐ $6\frac{1}{2}$ Ⓑ $6\frac{7}{10}$ Ⓒ $7\frac{1}{2}$ Ⓓ 8

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Add or subtract. Express each sum or difference in simplest form.

6. **a.** $2\frac{3}{4} + 3\frac{2}{5}$ **b.** $3\frac{1}{2} - 1\frac{7}{8}$

Estimate each sum or difference by using benchmarks.

7. **a.** $\frac{1}{4} + \frac{7}{12} + \frac{2}{3}$ **b.** $\frac{4}{5} - \frac{3}{7}$

Solve. Show your work.

8. Gail baked some cookies. She sold $\frac{2}{7}$ of the cookies on Monday. She sold $\frac{1}{3}$ more of the cookies on Tuesday than on Monday. What fraction of the cookies did Gail sell on the two days?

Name: _____ Date: _____

Solve. Show your work.

9. Katie has a roll of ribbon that is 8 feet long. She cuts off 3 feet of ribbon and the remaining length is cut into 8 shorter pieces of equal length. What is the length of each shorter piece of ribbon?

10. An organic farm uses $\frac{3}{7}$ of the land to grow potatoes and $\frac{2}{5}$ of the land to grow spinach. The remaining land is used to grow tomato plants. What fraction of the land is used to grow tomato plants?

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. Jenny uses $\frac{7}{9}$ gallon of water to water roses.
She uses $\frac{1}{4}$ gallon less water to water herbs.
How much water does Jenny use to water the roses and herbs?

12. Julian and Stacey needed 10 liters of water to fill a tank. Stacey filled the tank with $3\frac{11}{12}$ liters of water. Julian poured $1\frac{2}{5}$ liters less than Stacey into the tank.
How much more water is still needed to fill the tank?

Name: _____ Date: _____

TEST PREP 4

Multiplying and Dividing Fractions and Mixed Numbers

25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Multiply $\frac{4}{5}$ by $\frac{15}{16}$. Give your answer in simplest form.

Ⓐ $\frac{3}{4}$ Ⓑ $\frac{60}{80}$ Ⓒ $\frac{19}{21}$ Ⓓ $\frac{20}{21}$

2. Which has the same value as $\frac{5}{8} \div 3$?

Ⓐ $\frac{5}{8} \times \frac{3}{1}$ Ⓑ $\frac{8}{5} \times \frac{3}{1}$ Ⓒ $\frac{5}{8} \times \frac{1}{3}$ Ⓓ $\frac{8}{5} \times \frac{1}{3}$

3. Joe has $\frac{8}{9}$ kilogram of clay. He uses $\frac{3}{4}$ of it to make a vase. How much clay is left?

Ⓐ $\frac{5}{36}$ kg Ⓑ $\frac{23}{36}$ kg Ⓒ $\frac{2}{9}$ kg Ⓓ $\frac{7}{9}$ kg

4. Daisy has $5\frac{1}{2}$ pounds of chocolate. She uses $\frac{4}{5}$ of it to bake brownies. How much chocolate does she use to bake brownies?

Ⓐ $2\frac{1}{5}$ lb Ⓑ $2\frac{2}{5}$ lb Ⓒ $3\frac{3}{7}$ lb Ⓓ $4\frac{2}{5}$ lb

5. Claire picked some apples. She used $\frac{2}{5}$ of the apples to make jam. She gave $\frac{1}{3}$ of the remainder to her neighbor. What fraction of the apples did she give to her neighbor?

Ⓐ $\frac{2}{15}$ Ⓑ $\frac{1}{5}$ Ⓒ $\frac{2}{5}$ Ⓓ $\frac{3}{5}$

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Multiply or divide. Express your answer in simplest form.

6. **a.** $5\frac{5}{8} \times 18$ **b.** $\frac{3}{8} \div 12$

Solve. Show your work.

7. Jill had $\frac{4}{5}$ meter of cloth. She cut it into 8 equal pieces. What is the length of each piece?

8. Tom works $1\frac{3}{4}$ hours a day at a café. He is paid $8 an hour. How much money is he paid in 10 days?

Name: _____ Date: _____

Solve. Show your work.

9. Tyron takes $\frac{3}{4}$ hour to paint a wall. His brother takes $\frac{1}{3}$ of the time he takes. How long will his brother take to paint 5 similar walls?

10. Susan has \$80. She spends $\frac{3}{5}$ of the money on Monday. She spends the remaining money equally over the next 5 days. How much money does she spend on each of the 5 days?

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. Lisa has some clips. $\frac{1}{4}$ of the clips are pink, $\frac{1}{3}$ of the remainder are blue, and the rest are yellow. What fraction of the clips are yellow?

12. Klein read 30 pages of a book on Monday and $\frac{1}{8}$ of the book on Tuesday. He completed the remaining $\frac{1}{4}$ of the book on Wednesday. How many pages are there in the book?

Name: _____ Date: _____

TEST PREP

5 Algebra

25

Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. What does $8y$ mean?

Ⓐ $8 + y$ Ⓑ $8 \times y$ Ⓒ $8 \div y$ Ⓓ $8 - y$

2. Florence makes y cards in 3 minutes. How many cards does she make in 1 minute?

Ⓐ $\frac{3}{y}$ Ⓑ $\frac{1}{y}$ Ⓒ $\frac{y}{3}$ Ⓓ y

3. Divide the sum of 18 and z by 7.

Which is the expression for the above division statement?

Ⓐ $\frac{18 + z}{7}$ Ⓑ $\frac{18 + 7}{z}$

Ⓒ $z \div 7 + 18$ Ⓓ $18 + z \div 7$

4. What is the value of the expression $\frac{3p}{8} + 4$ when p is 32?

Ⓐ 8 Ⓑ 12 Ⓒ 12.5 Ⓓ 16

5. For what value of x will $6x - 3 > 2x + 15$ be true?

Ⓐ $x = 1$ Ⓑ $x = 2$ Ⓒ $x = 4$ Ⓓ $x = 5$

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Write your answer in the space given.

6. Write the expression for 100 less than the sum of 3 and x.

_____

7. Harris has \$60. He spends y dollars. How much money does he have left? Give your answer in terms of y.

Simplify each expression.

8. **a.** $15y + 2 - y + 3y + 6$ **b.** $(z - 24) \div 8 + 2$

Complete with =, >, or < for $x = 9$.

9. **a.** $4x + 3 \bigcirc \frac{100x}{20}$ **b.** $(100 - 2x) \div 2 \bigcirc 4 \times (x + 1)$

Solve each equation.

10. **a.** $18m - 52 = 5m$ **b.** $4p + 8 = 12p - 16$

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. Cheryl has some oranges. She puts the oranges into p boxes of 3 oranges each and has 2 oranges left.

a. Find the total number of oranges Cheryl has in terms of p.

b. If $p = 6$, how many oranges does Cheryl have?

12. Ernie read $3y + 4$ books. Gladice read $4y - 5$ books.

a. If $y = 3$, who read more books?

b. For what value of y will both of them read the same number of books?

Name: _____ Date: _____

TEST PREP

6 Area of a Triangle

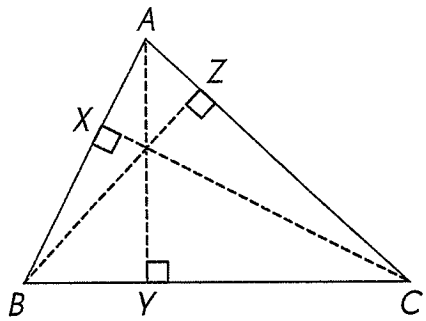
25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

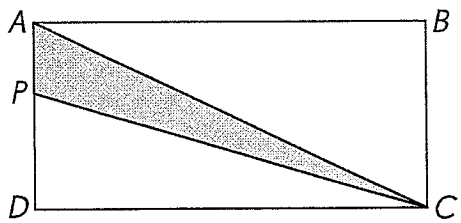
Fill in the circle next to the correct answer.

1. Which is the base of the triangle ABC when the height is $\overline{BZ}$?



Ⓐ $\overline{AB}$ Ⓑ $\overline{AC}$ Ⓒ $\overline{CX}$ Ⓓ $\overline{BC}$

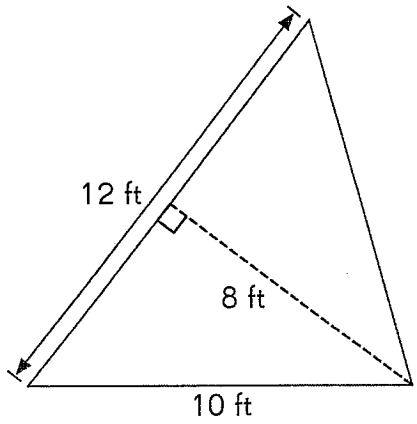
2. In the shaded triangle, which is the base if the height is $\overline{DC}$?



Ⓐ $\overline{PC}$ Ⓑ $\overline{BC}$ Ⓒ $\overline{AC}$ Ⓓ $\overline{AP}$

Name: _____ **Date:** _____

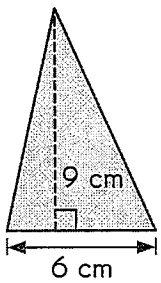
3. What is the area of the triangle?



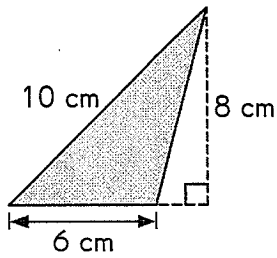
Ⓐ 48 ft^2 Ⓑ 60 ft^2 Ⓒ 80 ft^2 Ⓓ 96 ft^2

4. Which triangle has an area of 36 cm^2?

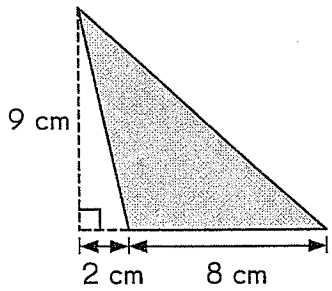
Ⓐ



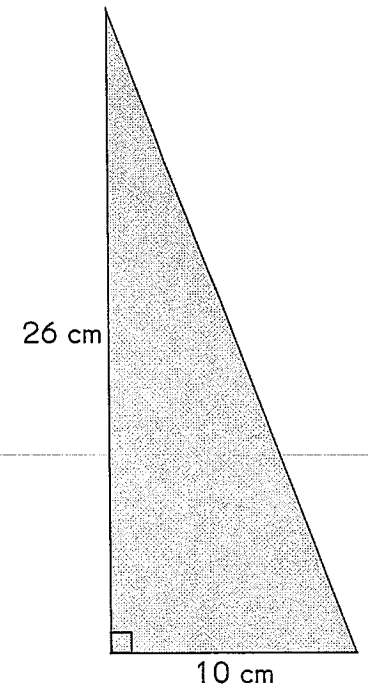
Ⓑ



Ⓒ

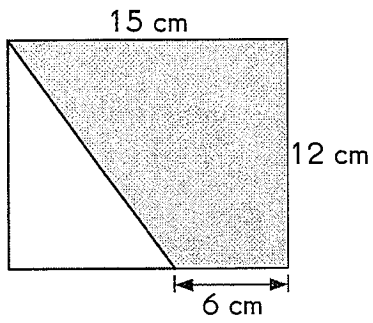


Ⓓ



Name: _____ Date: _____

5. Find the area of the shaded part of the figure.



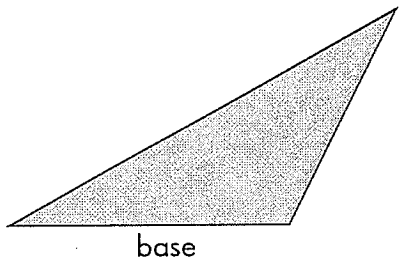
Ⓐ 144 cm^2 Ⓑ 126 cm^2 Ⓒ 54 cm^2 Ⓓ 36 cm^2

Short Answer

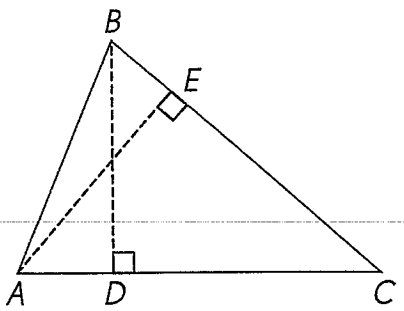
(5 × 2 points = 10 points)

Write your answer in the space given.

6. Draw the height of the triangle.



7. Name the base and height of the triangle.



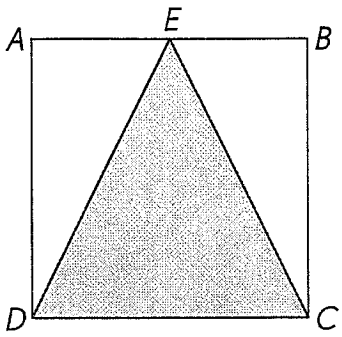
In triangle *BCD*,

Base: _____

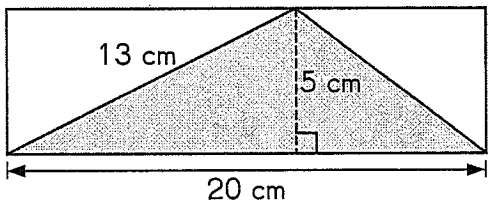
Height: _____

Name: _____ **Date:** _____

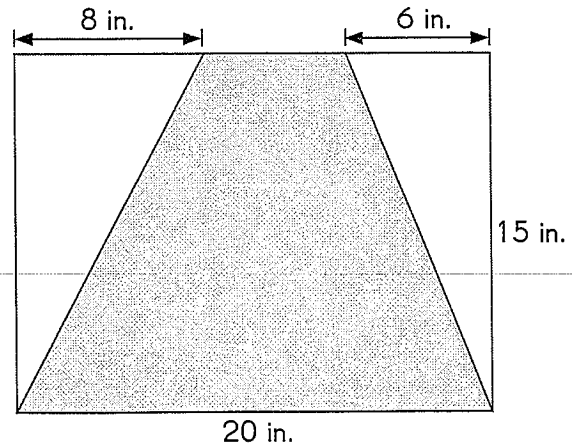
8. Find the area of the shaded triangle *CDE*.
ABCD is a square that has a side length of 24 meters.



9. Find the area of the shaded triangle.



10. Find the area of the shaded part.



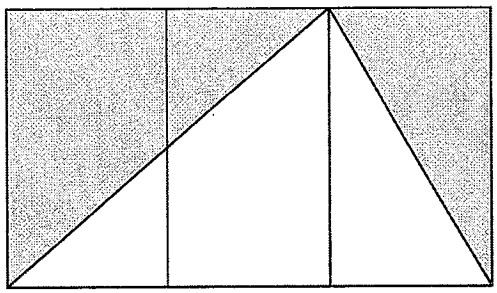
Name: _____ Date: _____

Extended Response

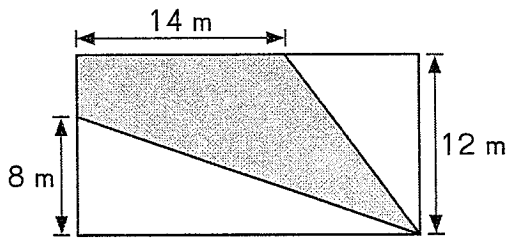
(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. The figure is made up of 3 identical rectangles measuring 8 centimeters by 3 centimeters. Find the area of the shaded part of the figure.



12. The perimeter of the rectangle is 60 meters. Find the area of the shaded part of the figure.



Name: _____ Date: _____

TEST PREP

8 Decimals

25

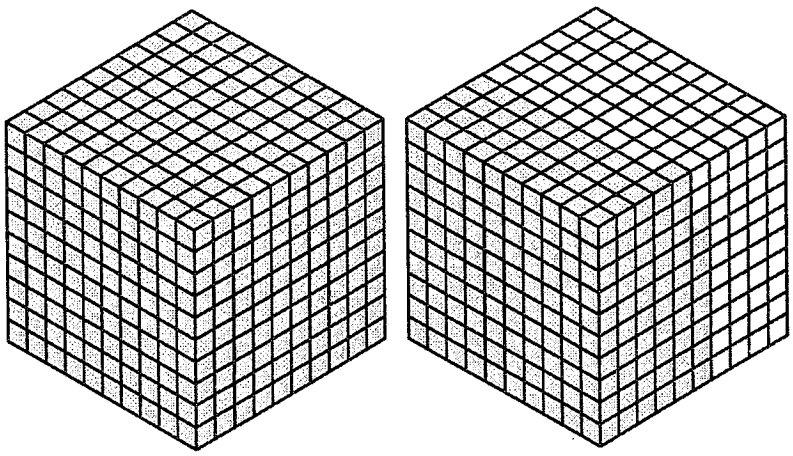
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Which decimal do the shaded parts represent?



Ⓐ 0.418

Ⓑ 1.418

Ⓒ 1.148

Ⓓ 4.18

2. What is the place value of the digit 3 in 8.139?

Ⓐ tens Ⓑ tenths Ⓒ hundredths Ⓓ thousandths

3. Which of these decimals is the greatest?

Ⓐ 21.07 Ⓑ 2.107 Ⓒ 1.973 Ⓓ 27.6

4. Round 5.693 to the nearest hundredth.

Ⓐ 5.69 Ⓑ 5.68 Ⓒ 5.7 Ⓓ 5.70

5. Write 6.04 as a mixed number in simplest form.

Ⓐ $6\frac{2}{5}$ Ⓑ $6\frac{1}{25}$ Ⓒ $6\frac{4}{100}$ Ⓓ $6\frac{64}{100}$

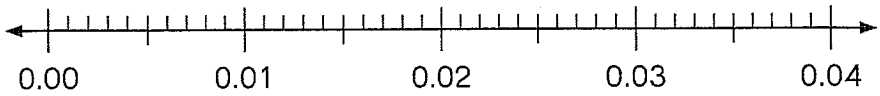
Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Show the location of each decimal by drawing an ✗ on the number line.

6. **a.** 0.014 **b.** 0.038



Write each mixed number as a decimal.

7. **a.** $5\frac{18}{1000} =$ _____ **b.** $2\frac{349}{1000} =$ _____

Order the decimals from least to greatest.

8. 6.63 3.6 10.1 3.178

_____

Complete.

9. 8.275 = 8 + 0.2 + _____ + _____

Solve.

10. A decimal has three decimal places. The decimal, rounded to the nearest tenth, is 1.6. What is the greatest possible decimal that can be rounded to 1.6?

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. To make fruit punch, Mrs. Casey adds 1,200 milliliters of water to 850 milliliters of syrup. How many liters of fruit punch does she make? Give your answer in liters.

12. The height of a vase is 6.2 feet when rounded to the nearest tenth of a foot. What is the shortest possible height of the vase? Give your answer to 3 decimal places.

Name: _____ Date: _____

TEST PREP 9

Multiplying and Dividing Decimals

25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

1. Multiply 2.68 by 8.

Ⓐ 2.144 Ⓑ 21.44 Ⓒ 214.4 Ⓓ 2,144

2. What number belongs in the box?

7.31 × ☐ = 2,193

Ⓐ 3 Ⓑ 30 Ⓒ 300 Ⓓ 3,000

3. Divide 72.38 by 70.

Ⓐ 1.034 Ⓑ 1.304 Ⓒ 10.34 Ⓓ 103.4

4. A stack of 4 identical books is 6.28 inches high. What is the height of 30 of these books?

Ⓐ 1.57 inches Ⓑ 4.7 inches

Ⓒ 15.7 inches Ⓓ 47.1 inches

5. Alice ran 5 laps around a track. She ran a total distance of 3.65 kilometers. Jim ran 20 laps around the same track. What is the total distance Jim ran?

Ⓐ 0.73 km Ⓑ 1.46 km Ⓒ 14.6 km Ⓓ 146 km

Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Find the missing number for each box.

6. **a.** $32.91 \times \square = 32{,}910$

b. $11{,}845 \div 500 = 2{,}369 \div \square$

Multiply.

7.

$$\begin{array}{r} 6.84 \\ \times \quad 7 \\ \hline \square\square\square\square \end{array}$$

Estimate each sum or difference by rounding to the nearest whole number.

8. **a.** $23.63 + 15.3$

b. $17.85 - 9.49$

Name: _____ Date: _____

Solve.

9. A piece of rope is 5 meters long. It is cut into 8 equal pieces. How long is each piece? Round your answer to the nearest hundredth.

10. A bag of flour weighs 15 pounds. A shopkeeper has one bag of flour. She sells 1.065 pounds of flour every day. How much flour is left after 8 days?

Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. Jai bought 2 pounds of grapes for $2.49 per pound and 3 muffins for $0.75 per muffin. How much did he pay for the grapes and muffins?

12. Mr. Romero buys 3 chairs at a cost of $27.90 for each chair. Estimate the least number of $20 bills he needs to buy the chairs.

Name: _____ Date: _____

TEST PREP

11 Graphs and Probability

25

Suggested Time: 30 min

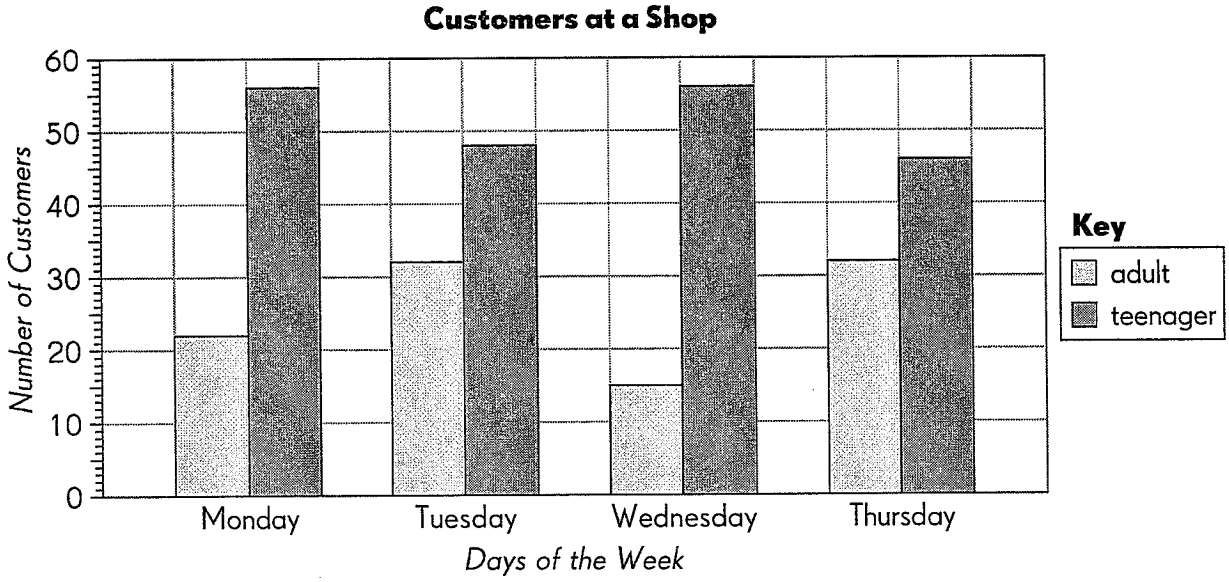
Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

Use the data in the graph to answer questions 1 and 2.

The graph shows the number of adult and teenage customers who visited a shop from Monday through Thursday.



1. On which 2 days were there the same number of customers?

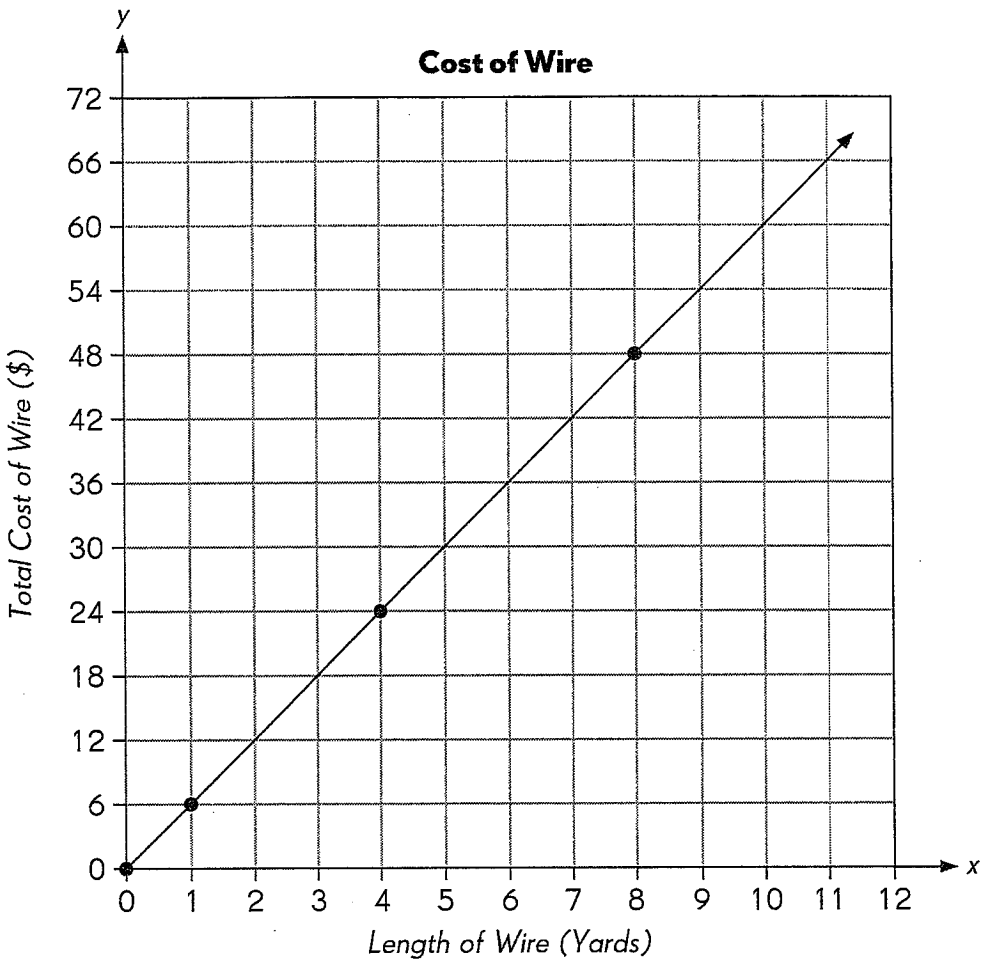
(A) Monday and Tuesday
(B) Wednesday and Thursday
(C) Monday and Thursday
(D) Tuesday and Thursday

2. On which day was there the largest difference between the numbers of adult and teenage customers?

(A) Monday
(B) Tuesday
(C) Wednesday
(D) Thursday

Name: _____ Date: _____

3. The graph shows the cost of various lengths of wire.



What is the cost of 9 yards of wire?

Ⓐ $54 Ⓑ $60 Ⓒ $66 Ⓓ $70

4. Joe has 4 pairs of shoes: white, black, blue, and brown. He has 2 more pairs of socks than pairs of shoes. Find the number of combinations of pairs of shoes and pairs of socks that Joe can wear.

Ⓐ 5 Ⓑ 6 Ⓒ 15 Ⓓ 24

Name: _____ Date: _____

5. A spinner is divided into 10 equal parts. Each part has a prize labeled on it – a pen, a mug, or a highlighter. The table shows the results of 30 spins.

Pen	Mug	Highlighter
8	15	7

Which is the likely set of prizes on the spinner?

	Pen	Mug	Highlighter	Total Number of Parts
(A)	6	2	2	10
(B)	3	5	2	10
(C)	1	5	4	10
(D)	4	2	4	10

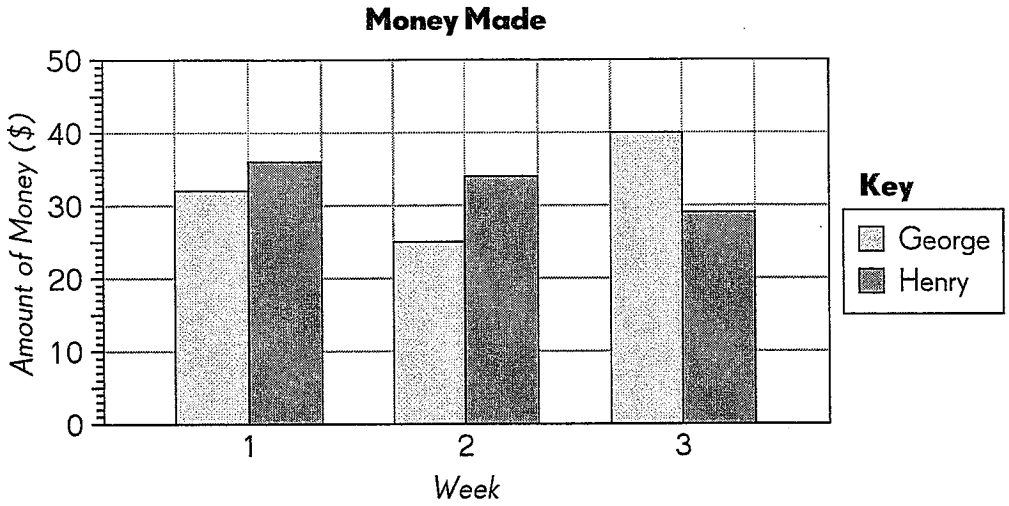
Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Complete. Use the data in the graph.

6. George and Henry worked as shop assistants during summer vacation. The graph shows the amount of money George and Henry made in 3 weeks.



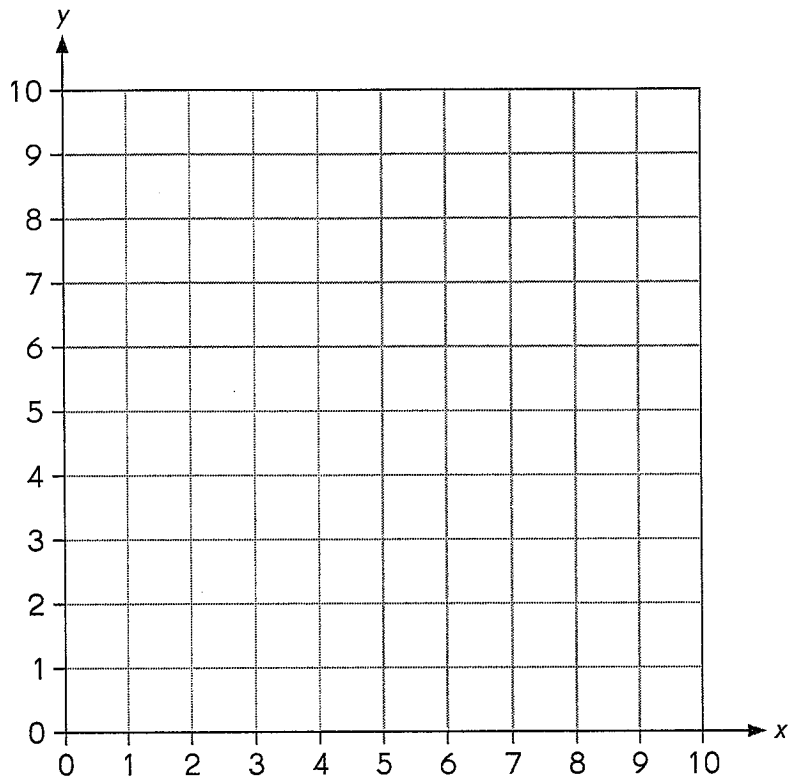
a. Who made more money in the 3 weeks?

b. How much more money did he make?

Name: _____ Date: _____

Plot the ordered pairs on the coordinate grid.

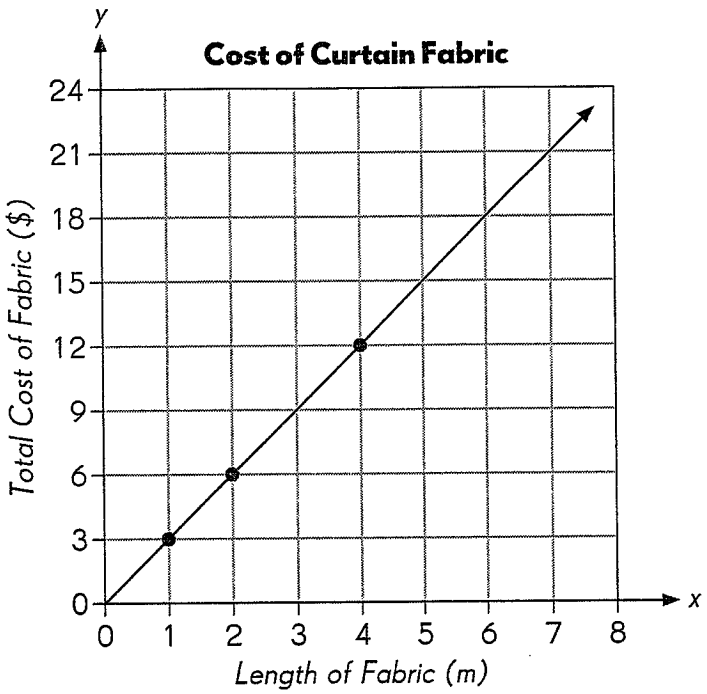
7. (4, 2) and (8, 10)



Name: _____ Date: _____

Complete. Use the data in the graph.

8. The graph shows the cost of various lengths of curtain fabric.



How many meters of curtain fabric can you buy with $21?

Complete.

9. A shop sells ice cream in 3 flavors: strawberry, chocolate, and vanilla. The shop offers 2 toppings: peanuts and raisins. Draw a tree diagram to find the number of combinations the shop can offer.

Name: _____ Date: _____

Solve.

10. A bag contains 5 white balls, 3 green balls and 4 black balls. A ball is drawn from the bag 50 times. The ball is put back in the bag after its color is recorded. The table shows the number of times each color was drawn.

Color	Number of Times Drawn
White	15
Green	26
Black	?

a. What is the experimental probability of drawing a black ball?

b. What is the difference between the theoretical probability and experimental probability of drawing a green ball?

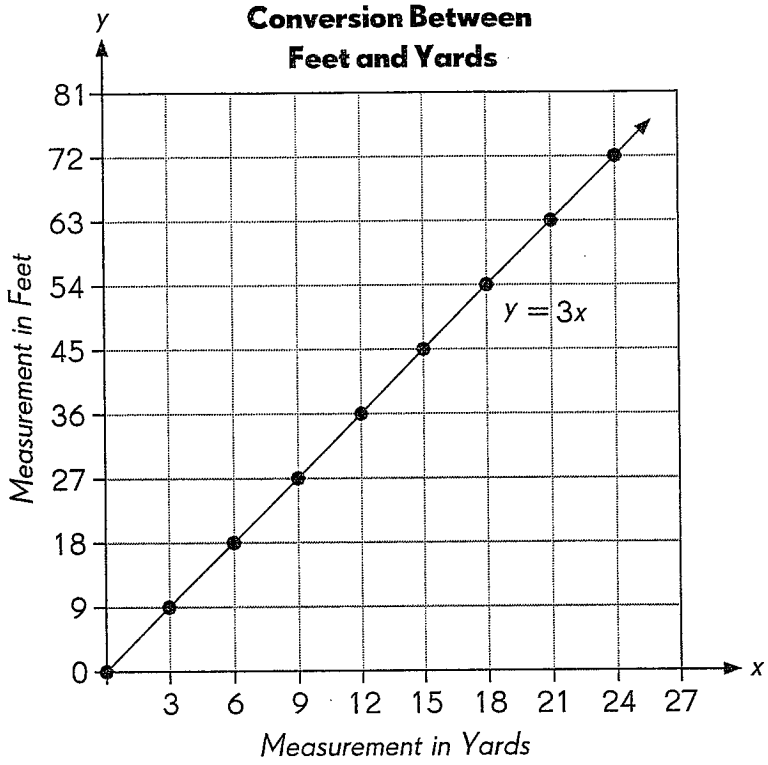
Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. The graph shows the conversion between feet and yards.



A rectangular plot of land measures 45 feet by 72 feet. Find the area of the land measured in square yards.

Name: _____ Date: _____

12. At a restaurant, the meat choices are roast turkey, fried chicken, and beef steak. The vegetable choices are long beans, salad, and broccoli.

a. Ms. Spencer wants to order 1 meat dish and 1 vegetable dish. Draw a tree diagram to find the number of combinations she can choose from.

b. If grilled fish is also available, how many combinations can Ms. Spencer choose from?

Name: _____ Date: _____

TEST PREP

11 Graphs and Probability

25

Suggested Time: 30 min

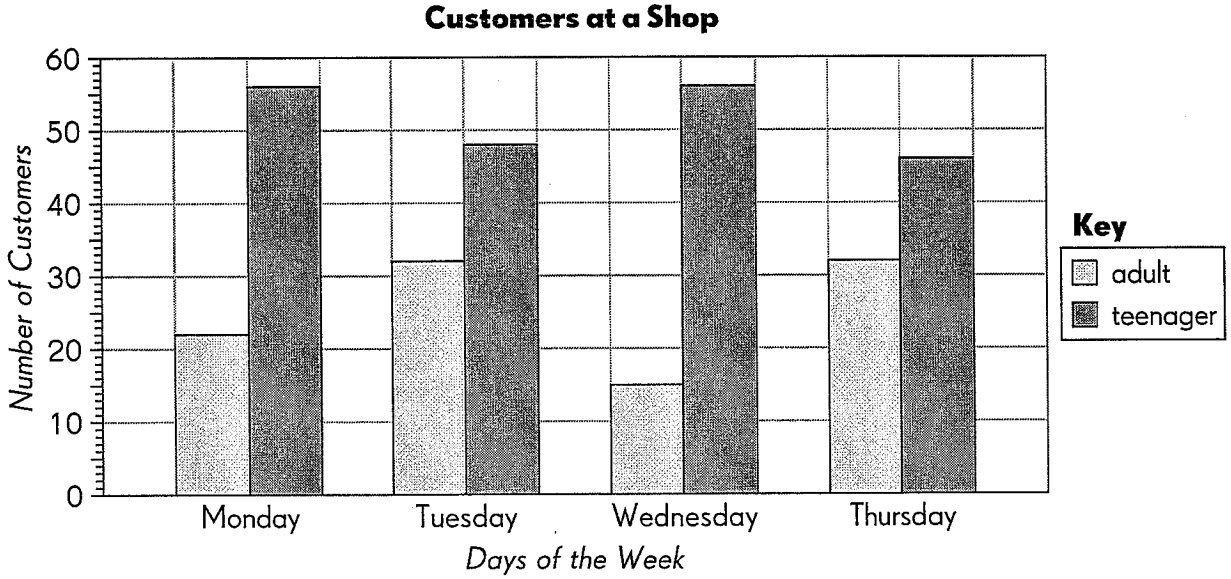
Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

Use the data in the graph to answer questions 1 and 2.

The graph shows the number of adult and teenage customers who visited a shop from Monday through Thursday.



1. On which 2 days were there the same number of customers?

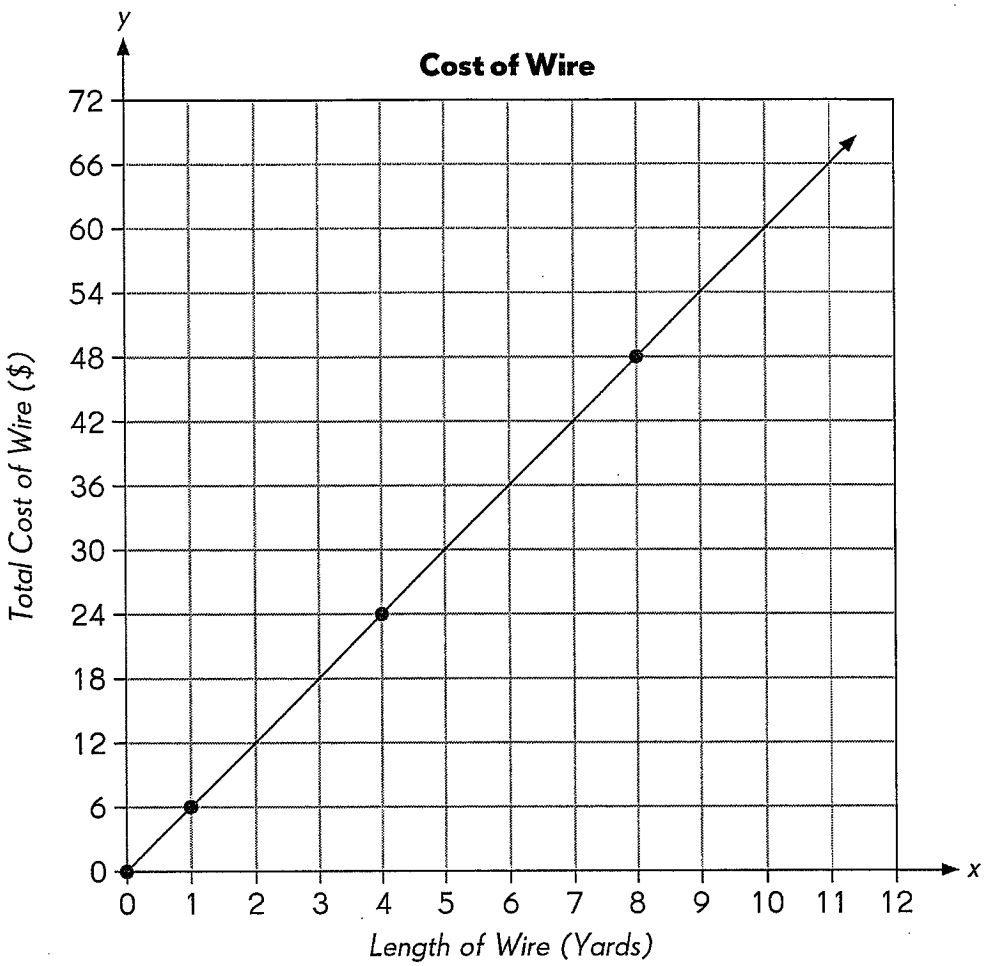
Ⓐ Monday and Tuesday
Ⓑ Wednesday and Thursday
Ⓒ Monday and Thursday
Ⓓ Tuesday and Thursday

2. On which day was there the largest difference between the numbers of adult and teenage customers?

Ⓐ Monday
Ⓑ Tuesday
Ⓒ Wednesday
Ⓓ Thursday

Name: _____ Date: _____

3. The graph shows the cost of various lengths of wire.



What is the cost of 9 yards of wire?

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4. Joe has 4 pairs of shoes: white, black, blue, and brown. He has 2 more pairs of socks than pairs of shoes. Find the number of combinations of pairs of shoes and pairs of socks that Joe can wear.

Ⓐ 5 Ⓑ 6 Ⓒ 15 Ⓓ 24

Name: _____ **Date:** _____

5. A spinner is divided into 10 equal parts. Each part has a prize labeled on it – a pen, a mug, or a highlighter. The table shows the results of 30 spins.

Pen	Mug	Highlighter
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Which is the likely set of prizes on the spinner?

	Pen	Mug	Highlighter	Total Number of Parts
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(D)	4	2	4	10

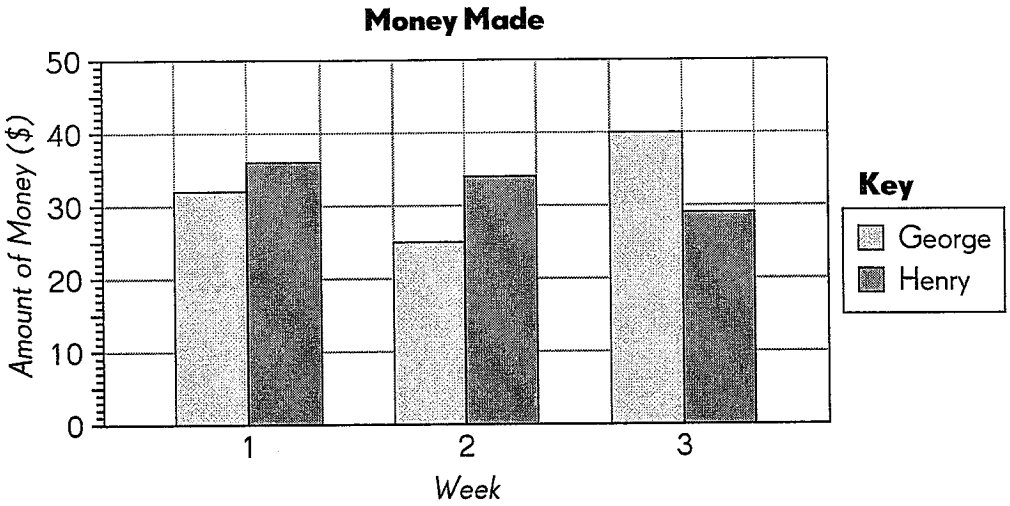
Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Complete. Use the data in the graph.

6. George and Henry worked as shop assistants during summer vacation. The graph shows the amount of money George and Henry made in 3 weeks.



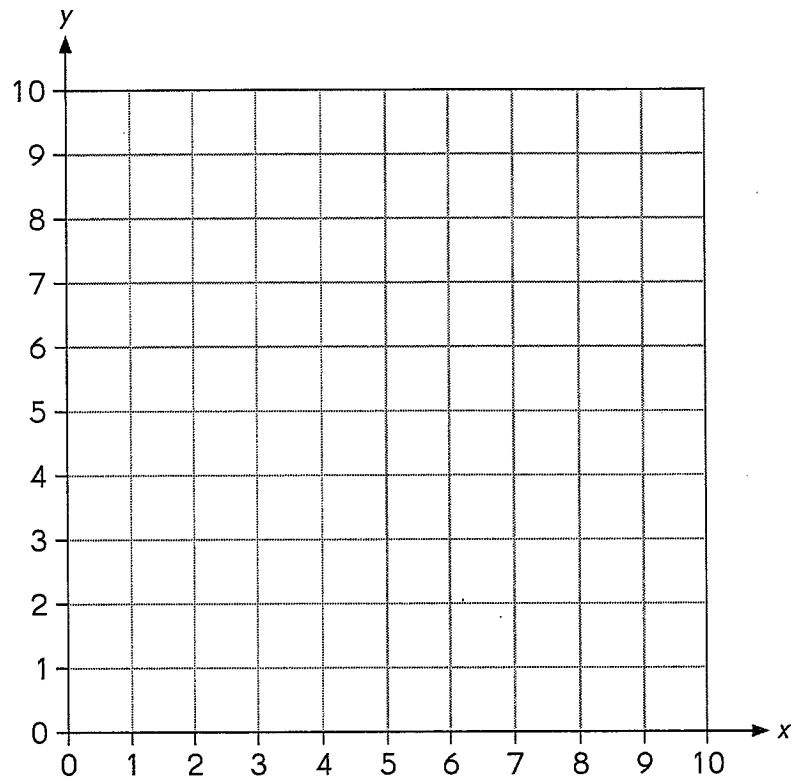
a. Who made more money in the 3 weeks?

b. How much more money did he make?

Name: _____ Date: _____

Plot the ordered pairs on the coordinate grid.

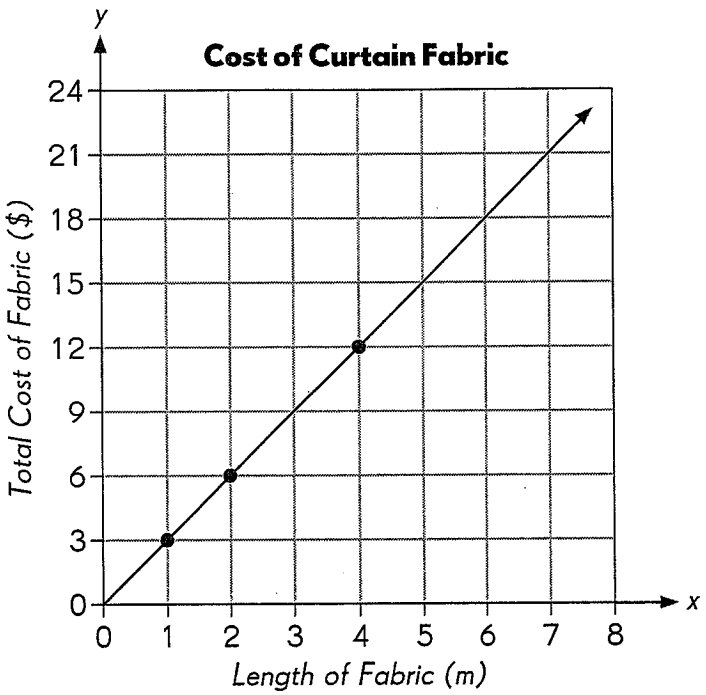
7. (4, 2) and (8, 10)



Name: _____ Date: _____

Complete. Use the data in the graph.

8. The graph shows the cost of various lengths of curtain fabric.



How many meters of curtain fabric can you buy with $21?

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9. A shop sells ice cream in 3 flavors: strawberry, chocolate, and vanilla. The shop offers 2 toppings: peanuts and raisins. Draw a tree diagram to find the number of combinations the shop can offer.

Name: _____ Date: _____

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a. What is the experimental probability of drawing a black ball?

b. What is the difference between the theoretical probability and experimental probability of drawing a green ball?

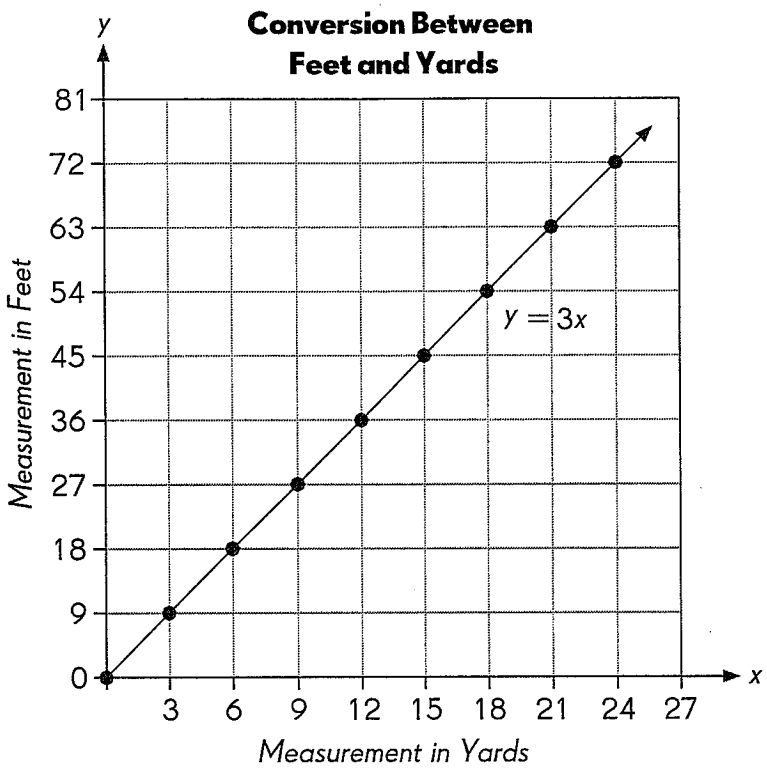
Name: _____ Date: _____

Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. The graph shows the conversion between feet and yards.



A rectangular plot of land measures 45 feet by 72 feet. Find the area of the land measured in square yards.

Name: _____ Date: _____

12. At a restaurant, the meat choices are roast turkey, fried chicken, and beef steak. The vegetable choices are long beans, salad, and broccoli.

a. Ms. Spencer wants to order 1 meat dish and 1 vegetable dish. Draw a tree diagram to find the number of combinations she can choose from.

b. If grilled fish is also available, how many combinations can Ms. Spencer choose from?

Name: _____ Date: _____

TEST PREP 13

Properties of Triangles and Four-sided Figures

25
Suggested Time: 30 min

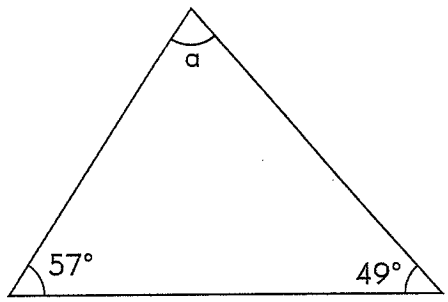
Multiple Choice

(5 × 2 points = 10 points)

Fill in the circle next to the correct answer.

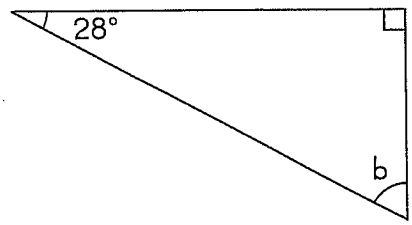
The figures in this section are not drawn to scale.

1. Find the unknown angle measure in the triangle.



Ⓐ 74° Ⓑ 106° Ⓒ 123° Ⓓ 131°

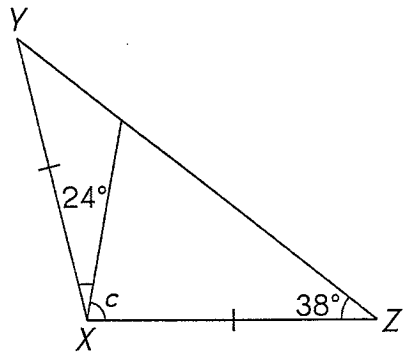
2. Find the unknown angle measure in the triangle.



Ⓐ 17° Ⓑ 62° Ⓒ 118° Ⓓ 152°

Name: _____ **Date:** _____

3. Triangle XYZ is an isosceles triangle. Find the measure of $\angle c$.



Ⓐ 142° Ⓑ 120° Ⓒ 104° Ⓓ 80°

4. Which of these sets of side lengths of a triangle is possible?

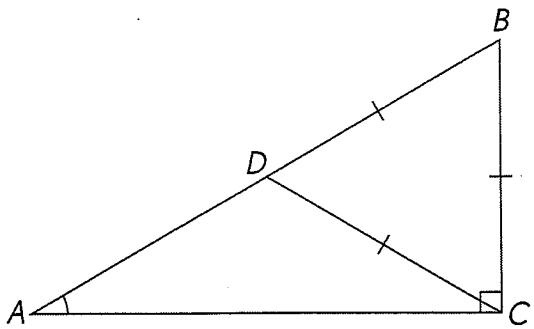
Ⓐ 4 ft, 9 ft, 5 ft

Ⓑ 5 cm, 5 cm, 10 cm

Ⓒ 6 in., 7 in., 8 in.

Ⓓ 3 m, 6 m, 3 m

5. Triangle ABC is a right triangle and BCD is an equilateral triangle. Find the measure of $\angle DAC$.



Ⓐ 30° Ⓑ 60° Ⓒ 120° Ⓓ 50°

Name: _____ Date: _____

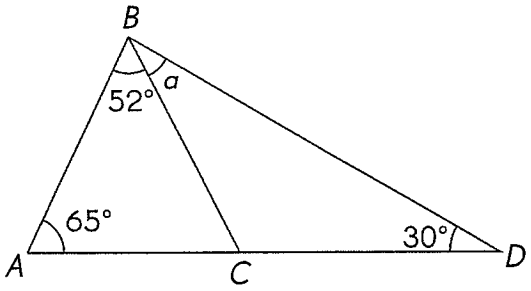
Short Answer

(5 × 2 points = 10 points)

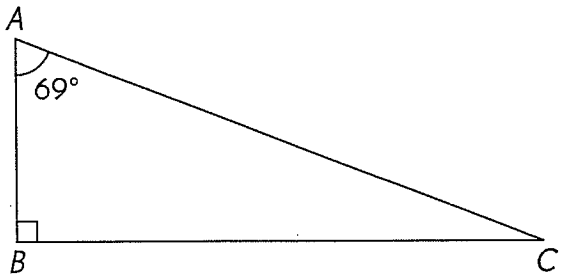
Write your answer in the space provided.

The figures in this section are not drawn to scale.

6. *ABC* and *BCD* are triangles. Find the unknown angle measure.



7. Triangle *ABC* is a right triangle.



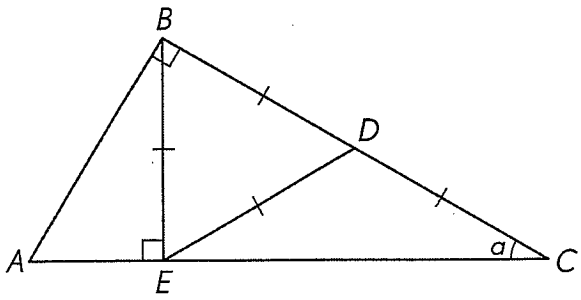
a. Complete with <, >, or =.

$m\angle BAC$ ◯ $m\angle ACB$

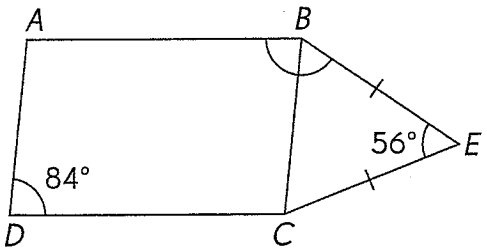
b. What is the difference in the angle measures of $\angle BAC$ and $\angle ACB$?

Name: _____ Date: _____

8. Triangle ABC is a right triangle. Triangle BDE is an equilateral triangle and Triangle CDE is an isosceles triangle. Find the measure of $\angle a$.

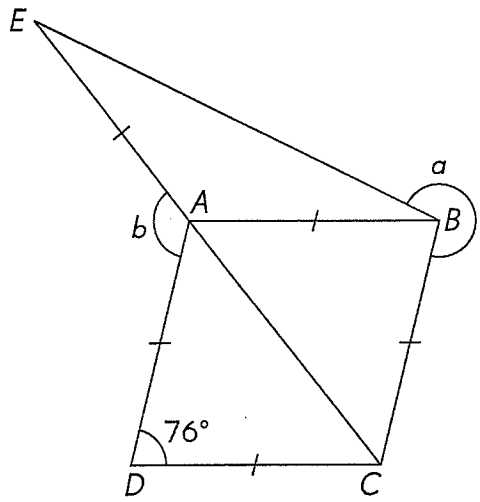


9. $ABCD$ is a parallelogram where $\overline{AB} \parallel \overline{DC}$. Triangle BCE is an isosceles triangle. Find the measure of $\angle ABE$.



Name: _____ **Date:** _____

10. *ABCD* is a rhombus. Triangle *ABE* is an isosceles triangle. $\overline{CE}$ is a line segment. Find the measures of $\angle a$ and $\angle b$.



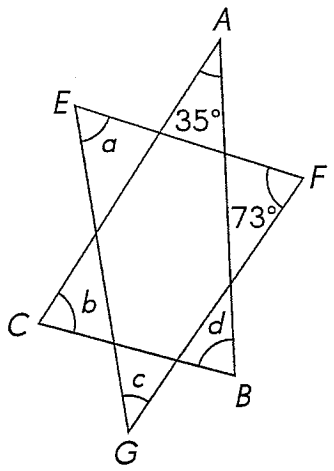
Name: _____ Date: _____

Extended Response

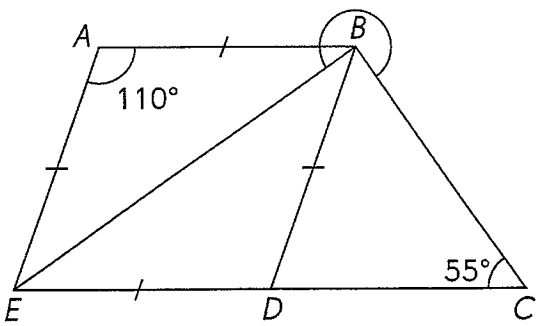
(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. *ABC* and *EFG* are triangles. Find the sum of the measures of $\angle a$, $\angle b$, $\angle c$, and $\angle d$.



12. *ABCE* is a trapezoid where $\overline{AB} \parallel \overline{EC}$. *ABDE* is a rhombus. Find the measure of $\angle EBC$.



Name: _____ Date: _____

TEST PREP 15 Surface Area and Volume

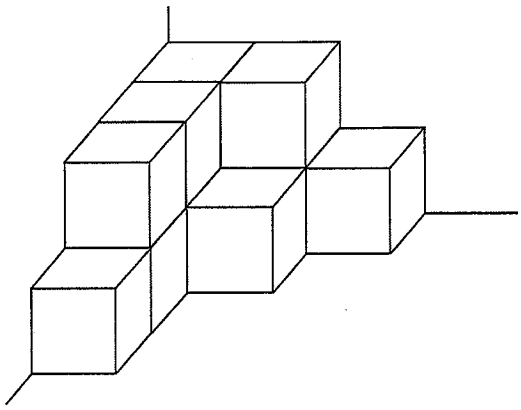
25
Suggested Time: 30 min

Multiple Choice

(5 × 2 points = 10 points)

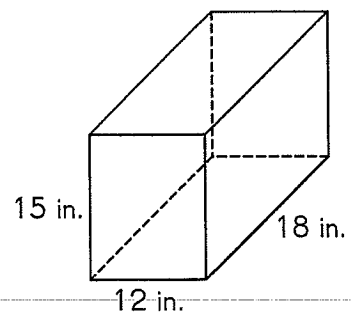
Fill in the circle next to the correct answer.

1. How many cubes are used to build the solid?



Ⓐ 9 Ⓑ 10 Ⓒ 11 Ⓓ 12

2. Find the total surface area of the outside of the tank. It has an open top.



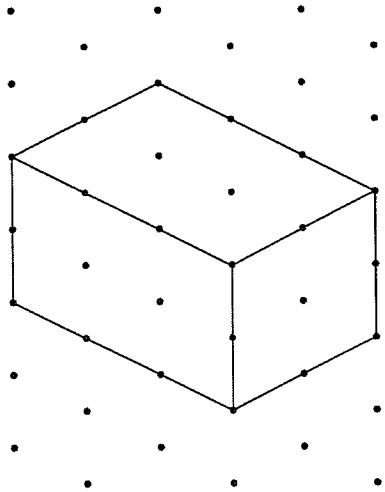
Ⓐ 180 in.^{2} Ⓑ 666 in.^{2}

Ⓒ 1,116 in.^{2} Ⓓ 1,332 in.^{2}

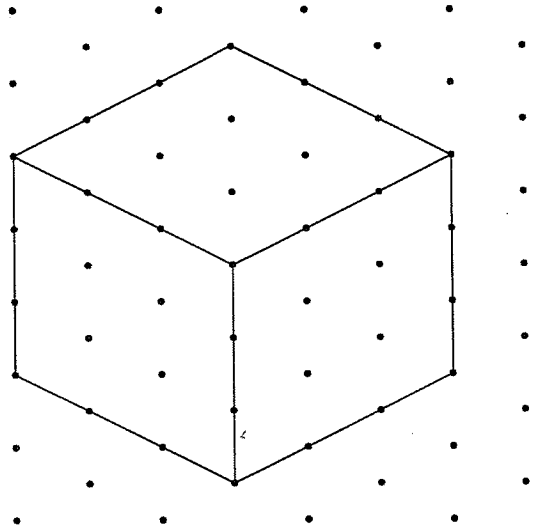
Name: _____ **Date:** _____

3. Which of these has edges that are 3 times as long as a unit cube?

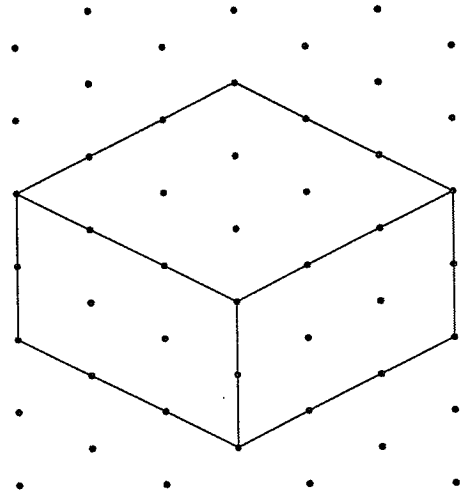
Ⓐ



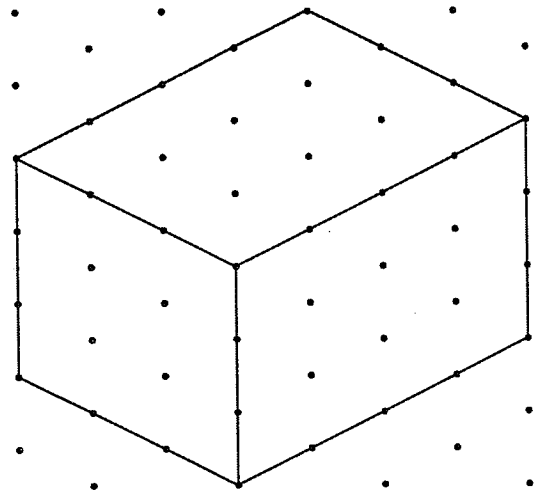
Ⓑ



Ⓒ

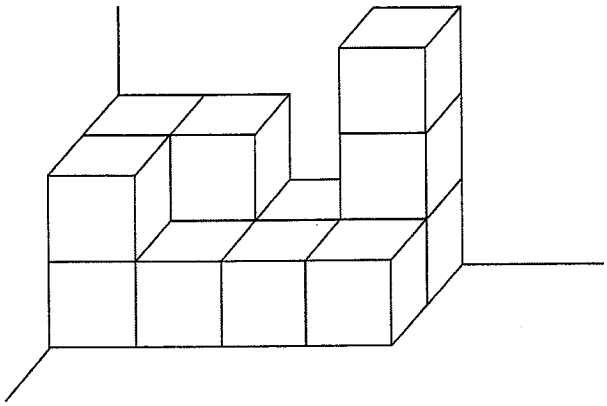


Ⓓ



Name: _____ **Date:** _____

4. The solid is made up of cubes that have edges that measure 2 centimeters. What is the volume of the solid?



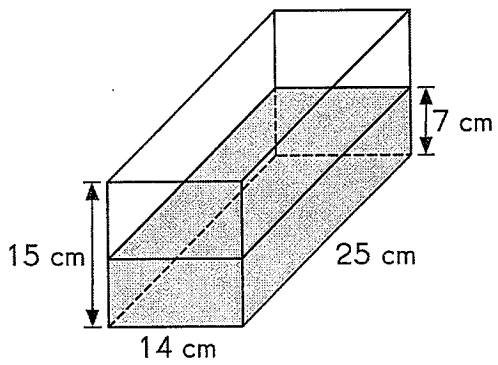
(A) 11 cm^3

(B) 13 cm^3

(C) 88 cm^3

(D) 104 cm^3

5. A tank has water in it at a height of 7 centimeters. How much more water is needed to fill the tank to the brim?



(A) 2.45 L

(B) 2.8 L

(C) 5.25 L

(D) 6.1 L

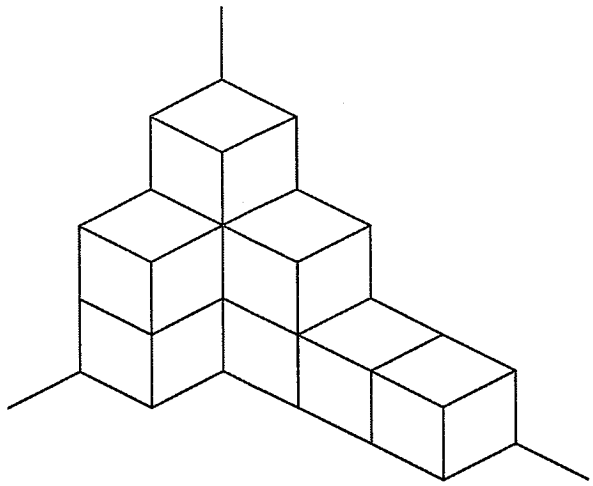
Name: _____ Date: _____

Short Answer

(5 × 2 points = 10 points)

Write your answer in the space provided.

6. How many cubes are used to build the solid?



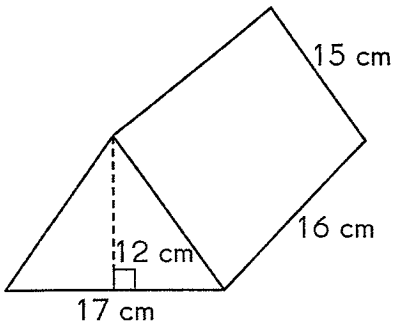
_____ cubes are used to build the solid.

7. Draw the different views of a rectangular prism that is made up of 3 unit cubes.

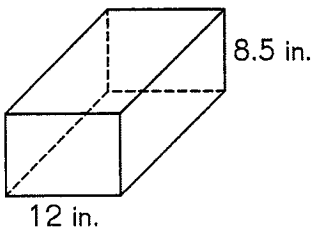
Name: _____ Date: _____

Complete.

8. Find the total surface area of the triangular prism.



9. The length of a rectangular block of wood is twice its width. The width of the block of wood is 12 inches. Find the volume of the block of wood.



10. A rectangular container has sides that measure 9 centimeters by 12 centimeters by 23 centimeters. Joan filled the container to its brim with water. How much water must she pour out of the container so that only $\frac{2}{3}$ of the volume of water is left in the container? Give your answer in milliliters.

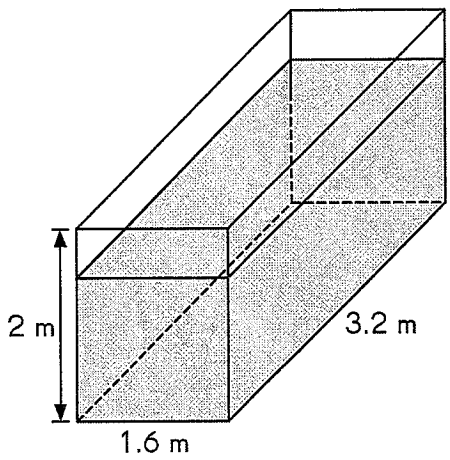
Name: _____ Date: _____

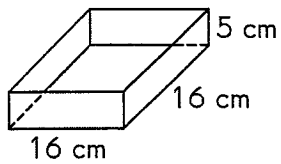
Extended Response

(Question 11: 2 points, Question 12: 3 points)

Solve. Show your work.

11. A tank is $\frac{3}{4}$-filled with water. Water from the tank is used to fill smaller containers. Each small container has a square base with edges that measure 16 centimeters each, and a height of 5 centimeters. How many small containers can the water from the tank fill?





Name: _____ Date: _____

Solve. Show your work.

12. A tank measures 30 centimeters by 30 centimeters by 50 centimeters. It is filled with water from a tap that flows at a rate of 6 liters per minute. How long would it take to fill $\frac{4}{5}$ of the tank with water? Give your answer in minutes and seconds.

Name: _____ Date: _____

End-of-Year Test

50
Suggested Time: 45 min

Multiple Choice

(10 × 2 points = 20 points)

Fill in the circle next to the correct answer.

1. Estimate 5,642 × 3 using front-end estimation.

Ⓐ 12,000 Ⓑ 15,000

Ⓒ 16,800 Ⓓ 18,000

2. What number belongs in the box?

$90 \div (15 - 13) + 6 = \square$

Ⓐ 1 Ⓑ 45 Ⓒ 48 Ⓓ 51

3. Of the 250 people at a concert, 160 are men. Half of the rest of the people are children. What percent of the people are women?

Ⓐ 9% Ⓑ 16% Ⓒ 18% Ⓓ 36%

4. In a race, a triathlete runs $\frac{1}{3}$ of the total distance, cycles $\frac{2}{5}$ of the total distance, and swims the remaining distance. He swims 1,200 meters. What is the total distance of the race?

Ⓐ 3,600 meters Ⓑ 4,500 meters

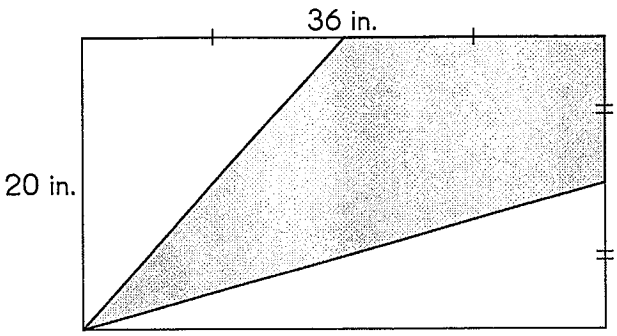
Ⓒ 6,000 meters Ⓓ 7,200 meters

5. 5 boys made s doughnuts. They sold the doughnuts for $3 each and shared the money they made equally. How much money did each boy get?

Ⓐ $\$\frac{3s}{5}$ Ⓑ $\$\frac{5s}{3}$ Ⓒ $\$\frac{5 + s}{5}$ Ⓓ $\$15s$

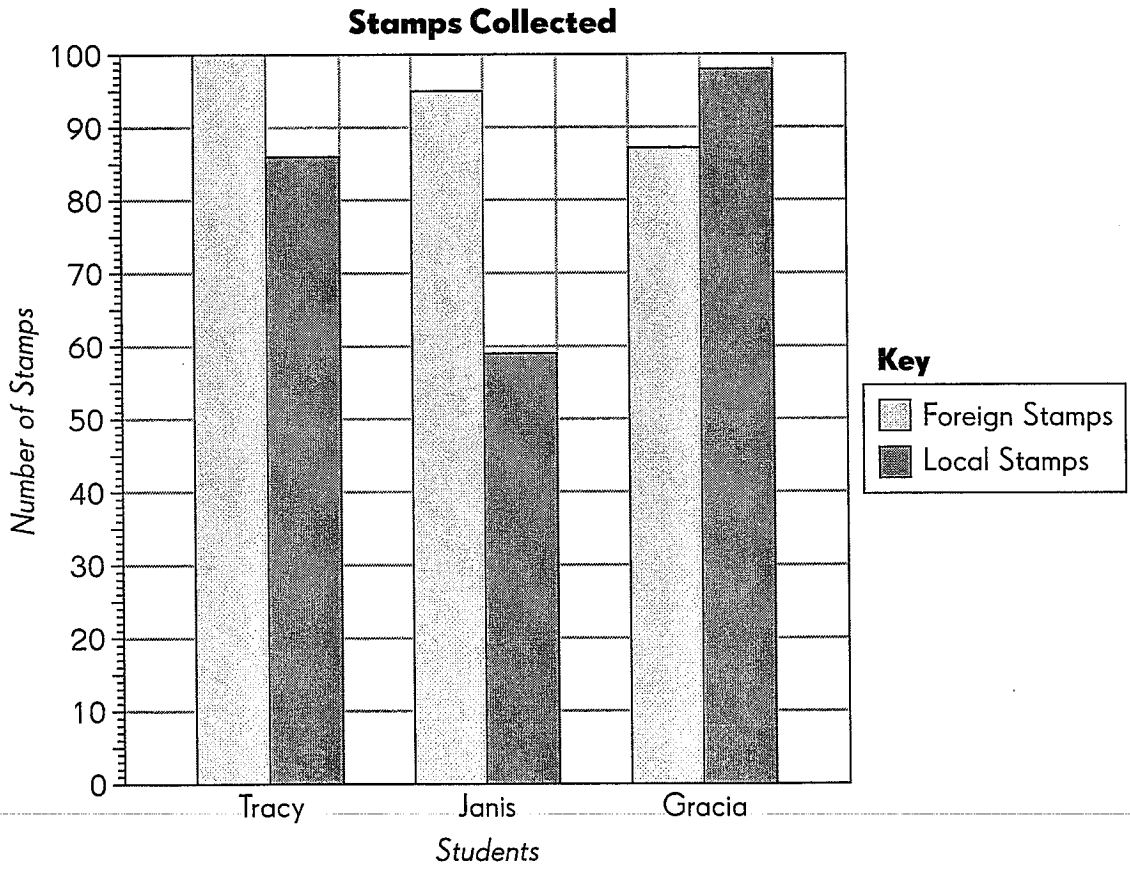
Name: _____ Date: _____

6. Find the area of the shaded part of the figure.



(A) 112 square inches
(B) 180 square inches
(C) 360 square inches
(D) 720 square inches

7. The graph shows the number of foreign stamps and local stamps 3 students collected.

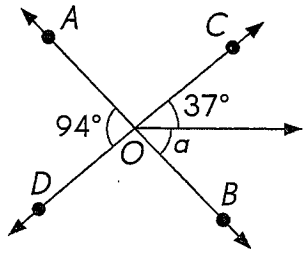


How many more foreign stamps than local stamps are there?

(A) 39 (B) 243 (C) 283 (D) 525

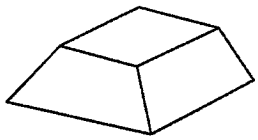
Name: _____ Date: _____

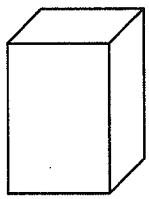
8. $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ meet at O. Find the measure of $\angle a$. The figure is not drawn to scale.

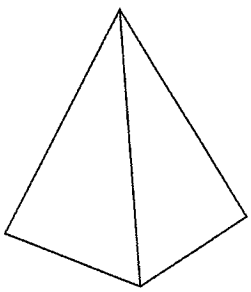


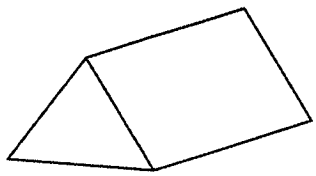
Ⓐ 143° Ⓑ 131° Ⓒ 86° Ⓓ 57°

9. Which solid has 4 rectangular faces and 2 square faces?

Ⓐ 

Ⓑ 

Ⓒ 

Ⓓ 

10. A tank that measures 40 feet by 36 feet by 18 feet is filled with water to $\frac{5}{6}$ of its height. $\frac{1}{3}$ of the water is poured out of the tank. How much water is left in the tank?

Ⓐ 25,920 ft^3 Ⓑ 21,600 ft^3

Ⓒ 14,400 ft^3 Ⓓ 7,200 ft^3

Name: _____ Date: _____

Short Answer

(10 × 2 points = 20 points)

Write your answer in the space provided.

11. Multiply 687 by 98.

12. Divide 6.42 by 5. Round your answer to the nearest hundredth.

13. Find $6\frac{1}{4} + 2\frac{7}{9} + 1\frac{3}{4}$.

Name: _____ Date: _____

Solve.

14. Mr. Abdul buys 4 bags of charcoal for a barbeque party. Each bag weighs $5\frac{1}{2}$ pounds. What is the total weight of the charcoal?

15. Simplify $16f - 3f + 9 + f - 7$.

Solve. Use models to help you.

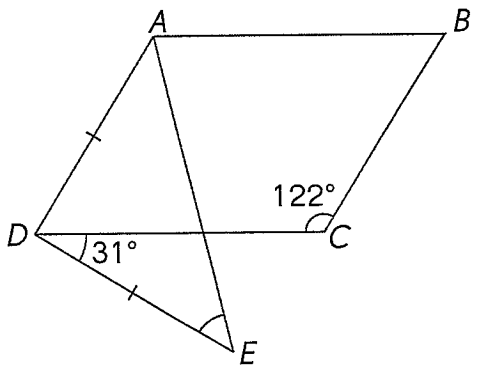
16. The ratio of the number of red beads to the number of green beads to the number of blue beads is 2 : 3 : 7. There are 150 more blue beads than red beads. How many beads are there in all?

Name: _____ Date: _____

Solve. Show your work.

17. There are 3 different cameras and 5 different books. A teacher wants to give 1 camera and 1 book to a student. Find the number of combinations the teacher can choose from.

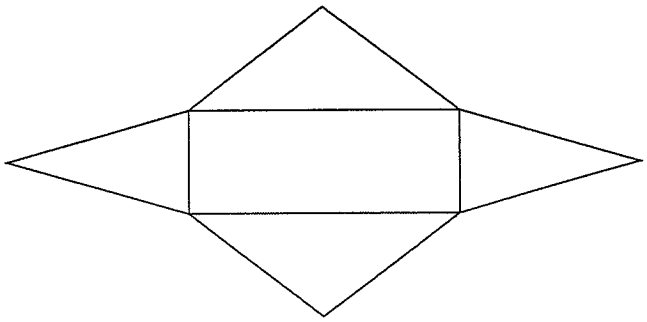
18. In the figure, *ABCD* is a parallelogram. Find the measure of $\angle DEA$.



Name: _____ Date: _____

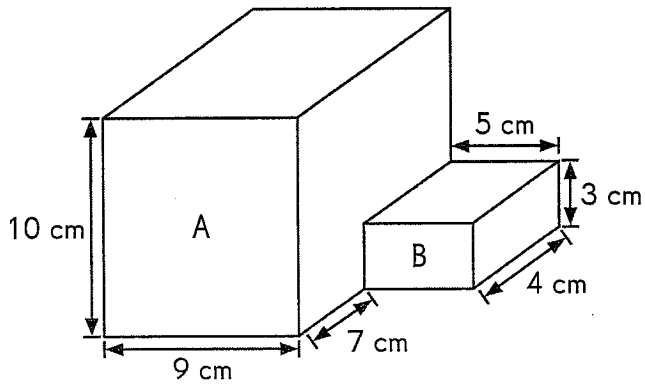
Solve.

19. Name the shape that the net will form.



_____

20. The solid is made up of 2 rectangular prisms, A and B. Solid A is painted red. Find the total surface area of solid A that is painted red.



Name: _____ Date: _____

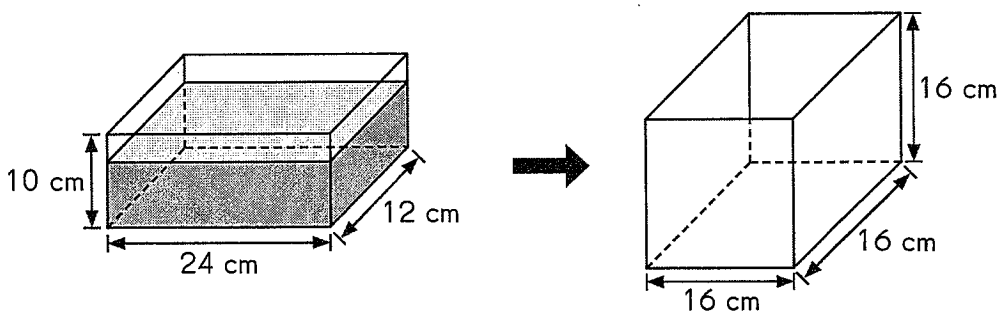
Extended Response

(Question 21 and 22: 2 × 3 points = 6 points; Question 23: 4 points)

Solve. Show your work.

21. Pritz made $7\frac{2}{3}$ pints of pineapple juice. She drank $\frac{5}{6}$ pints of the juice, and poured $\frac{3}{4}$ of the remaining juice equally into 3 bottles. How much pineapple juice does each bottle contain?

22. The rectangular tank shown is filled with water to $\frac{4}{5}$ of its height. The water is then poured into the cubical tank until the cubical tank is half full. How much water is left in the rectangular tank? Give your answer in liters. (1 L = 1,000 cm^3)



Name: _____ Date: _____

Solve. Show your work.

23. A baker made cakes, cookies, and buns. Of the total number of baked products he made, 28% were cookies. The number of cakes was 3 times the number of buns. He made 270 cakes. He sold 40 buns and 120 cakes. How many cookies must he sell so that the ratio of the number of buns left to the number of cakes left to the number of cookies left is 1 : 3 : 2?

Name: _____ Date: _____

Bonus Questions

Solve. Show your work.

1. Paul has just enough money to buy either 5 erasers and 30 pencils or 10 erasers and 24 pencils. Each eraser costs $0.30. How much does each pencil cost?

2. All the triangles in the following figures are equilateral triangles. In figure 2, a smaller triangle is formed inside the triangle in figure 1 by connecting the midpoints of the sides of the bigger triangle. Figure 3 and figure 4 are obtained in the same way. The area of the biggest equilateral triangle is 128 cm^2. Find the area of the smallest equilateral triangle in figure 4.

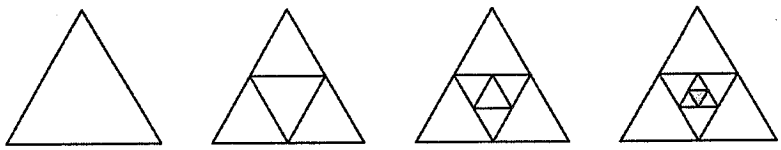


Figure 1 Figure 2 Figure 3 Figure 4

Answers

Pre-Test 1

1. value
2. compare
3. rounding
4. front-end estimation
5. fifteen thousand, seven hundred thirty-two
6. 60,000
7. a. 40,000 b. 400,000
8. a. 76,480 = 70,000 + 6,000 + 400 + 80
   b. 620,315 = 600,000 + 20,000 + 300 + 10 + 5
9. a. > b. <
10. 374,875 374,248 355,410
11. a. 37,900 b. 56,400
12. 4,000 + 7,000 = 11,000
13. 10,000 − 3,000 = 7,000
14. 500 + 800 = 1,300
15. 900 − 400 = 500
16. 2,742 rounds to 3,000.
    3,000 × 7 = 21,000
    2,742 × 7 is about 21,000.
17. 700 × 9 = 6,300
    800 × 9 = 7,200
    6,502 is nearer to 6,300 than to 7,200.
    6,300 ÷ 9 = 700
    6,502 ÷ 9 is about 700.
18. a. Ms. Carlson has more money.
    b. \$7,145 → \$7,100
    \$3,799 → \$3,800
    They have about \$7,100 + \$3,800 = \$10,900.
19. 315 ft → 300 ft
    175 ft → 100 ft
    300 ft × 100 ft = 30,000 sq. ft
    The area of the rectangular field is about 30,000 square feet.

Test Prep 1

1. C 2. B 3. D 4. C
5. C
6. a. six million, three hundred twenty-six thousand, five hundred eight
   b. 4,781,020 = 4,000,000 + 700,000 + 80,000 + 1,000 + 20
7. a. < b. >
8. 2,691 → 2,000
   8,173 → 8,000
   4,724 → 4,000
   2,000 + 8,000 + 4,000 = 14,000
   691 + 173 + 724 → 600 + 100 + 700 = 1,400
   1,400 rounded to the nearest thousand is 1,000.
   14,000 + 1,000 = 15,000
   The estimated sum is 15,000.
9. 7,685 → 7,000
   3,768 → 3,000
   7,000 − 3,000 = 4,000
   768 − 685 → 700 − 600 = 100
   100 rounded to the nearest thousand is 0.
   4,000 − 0 = 4,000
   The estimated difference is 4,000.
10. 3,937,245; 4,937,445
    Rule: Count on by 500,100.
11. 6,157 → 6,000
    6,000 × 9 = 54,000
    There are about 54,000 passengers in total.
12. 3,548 → 3,200
    3,200 ÷ 8 = 400
    Each crate has about 400 mangoes.
    or 3,548 → 4,000
    4,000 ÷ 8 = 500
    Each crate has about 500 mangoes.

Pre-Test 2

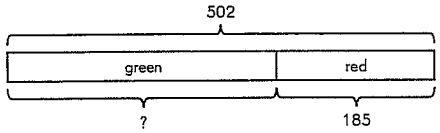
1. expanded form
2. multiplication facts
3. product
4. bar model
5. nearest 1,000
6. a. eight million, two hundred thirty-eight thousand, six hundred fifteen
   b. 8,000,000 + 200,000 + 30,000 + 8,000 + 600 + 10 + 5
7. ? = 315 + 89 = 404
8. ? = 8,614 − 509 = 8,105
9. ? = 8 × 15 = 120
10. ? = 294 ÷ 7 = 42
11. ? = 156 ÷ 6 = 26
12. 8,000 13. 82,000
14. 400 × 9 = 3,600
15. 800 × 7 = 5,600
16. 900 × 5 = 4,500
17. 200 × 8 = 1,600

18. $4 \times 90 = 360$
$4 \times 100 = 400$
372 is nearer to 360 than to 400.
$360 \div 4 = 90$
$372 \div 4$ is about 90.

19. $6 \times 30 = 180$
$6 \times 40 = 240$
197 is nearer to 180 than to 240.
$180 \div 6 = 30$
$197 \div 6$ is about 30.

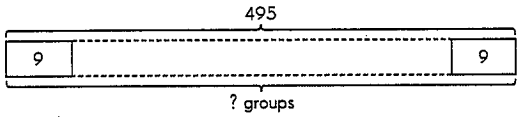
20. $198 \div 5 \rightarrow 200 \div 5 = 40$
Each crate has about 40 oranges.

21.



$? = 502 - 185$
$= 317$
There are 317 green beads.

22.



$? = 495 \div 9$
$= 55$
Hector will need 55 envelopes.

Test Prep 2

1. B 2. C 3. C 4. D
5. A
6. $2{,}356 \times 700 = (2{,}356 \times 7) \times 100$
$= 16{,}492 \times 100$
$= 1{,}649{,}200$

7.
$$\begin{array}{r} {\scriptstyle 4\ 1}\\ {\scriptstyle 5\ 1}\\ 8{,}093\\ \times\quad 56\\ \hline 48{,}558\\ 404{,}650\\ \hline 453{,}208 \end{array}$$

8. $1{,}620 \times 68 = 1{,}600 \times 70$
$= 1{,}600 \times 7 \times 10$
$= 11{,}200 \times 10$
$= 112{,}000$
The area of the wall is about 112,000 square centimeters.

9. $3{,}812 \div 48 = 4{,}000 \div 50$
$= (4{,}000 \div 10) \div 5$
$= 400 \div 5$
$= 80$
About 80 rows of seats are occupied.

10. Cost of one camera $= (\$8{,}153 + \$847) \div 100$
$= \$9{,}000 \div 100$
$= \$90$
$\$150 - \$90 = \$60$
Tom earned \$60 from selling each camera.

11. $\$5{,}645 - \$500 = \$5{,}145$
$\$5{,}145 \div 7 = \$735$
He paid \$735 each month.

12. a. $1{,}400 \div 35 = 40$
$40 \times \$1.60 = \$64$
Jody paid \$64 for the beads.
b. $1{,}400 \div 16 = 87\frac{1}{2}$
She needs 88 small boxes.

Pre-Test 3

1. like fractions 2. prime numbers
3. equivalent fractions 4. unlike fractions
5. $\frac{3}{10}, \frac{7}{10}$ 6. a. $\frac{3}{5}$ b. $\frac{1}{3}$
7. a. 32 b. 5 8. 23 9. 9
10. $\frac{2}{7}, \frac{1}{3}; \frac{2}{7}, \frac{3}{8}; \frac{2}{7}, \frac{5}{8}; \frac{3}{8}, \frac{1}{3}; \frac{1}{3}, \frac{5}{8}$
11. a. $3\overline{)17}$ R 2, $\frac{17}{3} = 5\frac{2}{3}$
b. $20\overline{)23}$ R 3, $\frac{23}{20} = 1\frac{3}{20}$
12. $\frac{1}{3} + \frac{1}{12} = \frac{4}{12} + \frac{1}{12} = \frac{5}{12}$
13. $\frac{5}{8} + \frac{1}{4} + \frac{1}{2}$
$= \frac{5}{8} + \frac{2}{8} + \frac{4}{8} = \frac{11}{8} = 1\frac{3}{8}$
14. $\frac{7}{9} - \frac{1}{3} = \frac{7}{9} - \frac{3}{9} = \frac{4}{9}$
15. $3 - \frac{1}{2} - \frac{1}{6} = \frac{18}{6} - \frac{3}{6} - \frac{1}{6}$
$= \frac{14}{6}$
$= \frac{7}{3}$
$= 2\frac{1}{3}$

16. 0.6 17. 0.74

18. $1 - \frac{3}{5} - \frac{1}{10} = \frac{10}{10} - \frac{6}{10} - \frac{1}{10} = \frac{3}{10}$

Linus has $\frac{3}{10}$ of the cake.

19. $\frac{4}{5} + \frac{3}{10} = \frac{8}{10} + \frac{3}{10} = \frac{11}{10} = 1\frac{1}{10}$

He has $1\frac{1}{10}$ kilograms of raisins now.

Test Prep 3

1. D 2. C 3. A 4. C
5. B

6. a. $2\frac{3}{4} + 3\frac{2}{5}$

$= 2\frac{15}{20} + 3\frac{8}{20}$

$= 5\frac{23}{20}$

$= 6\frac{3}{20}$

b. $3\frac{1}{2} - 1\frac{7}{8}$

$= 3\frac{4}{8} - 1\frac{7}{8}$

$= 2\frac{12}{8} - 1\frac{7}{8}$

$= 1\frac{5}{8}$

7. a. $0 + \frac{1}{2} + \frac{1}{2} = 1$

b. $1 - \frac{1}{2} = \frac{1}{2}$

8. $\frac{2}{7} + (\frac{2}{7} + \frac{1}{3}) = \frac{19}{21}$

Gail sold $\frac{19}{21}$ of the cookies on the two days.

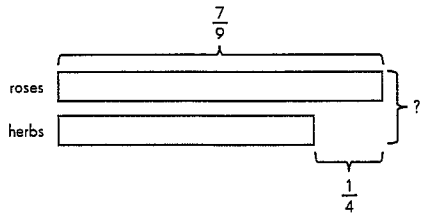
9. $(8 - 3) \div 8 = \frac{5}{8}$

Each shorter piece of ribbon is $\frac{5}{8}$ foot long.

10. $1 - (\frac{3}{7} + \frac{2}{5}) = 1 - \frac{29}{35} = \frac{6}{35}$

$\frac{6}{35}$ of the land is used to grow tomato plants.

11.



$\frac{7}{9} + (\frac{7}{9} - \frac{1}{4}) = \frac{7}{9} + \frac{19}{36} = \frac{47}{36} = 1\frac{11}{36}$

Jenny uses $1\frac{11}{36}$ gallons of water to water the roses and herbs.

12. Julian poured $3\frac{11}{12} - 1\frac{2}{5} = \frac{47}{12} - \frac{7}{5}$

$= \frac{151}{60} = 2\frac{31}{60}$ L

$3\frac{11}{12} + 2\frac{31}{60} = \frac{47}{12} + \frac{151}{60} = \frac{386}{60}$

$= 6\frac{13}{30}$ L

10 L $- 6\frac{13}{30}$ L $= 3\frac{17}{30}$ L

$3\frac{17}{30}$ liters more water is still needed to fill the tank.

Pre-Test A

1. simplify 2. improper fraction
3. decimal 4. $\frac{2}{9}$; $\frac{4}{18}$; $\frac{6}{27}$

5. $\frac{15}{18} = \frac{15 \div 3}{18 \div 3} = \frac{5}{6}$

6. $\frac{14}{35} = \frac{14 \div 7}{35 \div 7} = \frac{2}{5}$

7. $3 - \frac{3}{10} = \frac{30}{10} - \frac{3}{10} = \frac{27}{10} = 2\frac{7}{10}$

8. a. $\frac{15}{4} = \frac{12}{4} + \frac{3}{4}$

$= 3 + \frac{3}{4}$

$= 3\frac{3}{4}$

b. $\frac{21}{5} = \frac{20}{5} + \frac{1}{5}$

$= 4 + \frac{1}{5}$

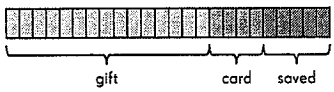
$= 4\frac{1}{5}$

9. $5\frac{2}{5} = 5 + \frac{2}{5}$
$= \frac{25}{5} + \frac{2}{5}$
$= \frac{27}{5}$

10. $\frac{3}{5} = \frac{3 \times 20}{5 \times 20}$
$= \frac{60}{100}$
$= 0.6$

11. $\frac{2}{3} \times 36 = \frac{2 \times 36}{3}$
$= \frac{72}{3}$
$= 24$

12. $25 \times 4 \div (12 - 8) = 25 \times 4 \div 4$
$= 100 \div 4$
$= 25$

13. 

14. 9 cupcakes → \$18
1 cupcake → \$18 ÷ 9 = \$2
6 cupcakes → 6 × \$2 = \$12
6 cupcakes cost \$12.

15. Teddy bears: $\frac{1}{3} \times 18 = 6$

Balls: $\frac{1}{6} \times 18 = 3$

Dolls: $18 - 6 - 3 = 9$
Kim has 9 dolls.

16. $3 \times 12 = 36$
$3 \times 20 = 60$
Total number of colored pencils $= 36 + 60 = 96$
$96 \div 8 = 12$
There are 12 colored pencils in each packet.

Test Prep 4

1. A 2. C 3. C 4. D
5. B

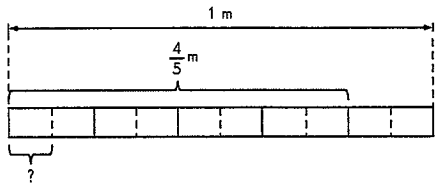
6. a. $5\frac{5}{8} \times 18 = \frac{45}{8} \times 18$
$= \frac{810}{8}$
$= \frac{808}{8} + \frac{2}{8}$
$= 101 + \frac{2}{8}$
$= 101\frac{2}{8} = 101\frac{1}{4}$

b. **Method 1**

$\frac{3}{8} \div 12 = \frac{3}{8} \div \frac{12}{1}$
$= \frac{3}{8} \times \frac{1}{12}$
$= \frac{3}{96}$
$= \frac{1}{32}$

Method 2

$\frac{3}{8} \div 12 = \frac{1}{12}$ of $\frac{3}{8}$
$= \frac{1}{12} \times \frac{3}{8}$
$= \frac{3}{96}$
$= \frac{1}{32}$

7. 

$\frac{4}{5} \div 8 = \frac{4}{5} \times \frac{1}{8} = \frac{4}{40} = \frac{1}{10}$ m

Each piece is $\frac{1}{10}$ meter long.

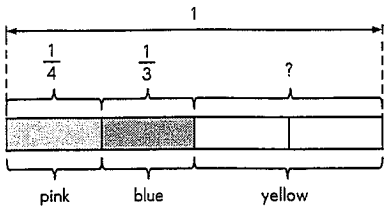
8. $1\frac{3}{4} \times \$8 = \frac{7}{4} \times \$8 = \$14$
$\$14 \times 10 = \$140$
He is paid \$140 in 10 days.

9. $\frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$
$\frac{1}{4} \times 5 = \frac{5}{4} = 1\frac{1}{4}$

His brother will take $1\frac{1}{4}$ hours to paint 5 similar walls.

10. $\$80 \times \frac{3}{5} = \$48$
$\$80 - \$48 = \$32$
$\$32 \div 5 = \$6.40$
She spends \$6.40 each day.

11.

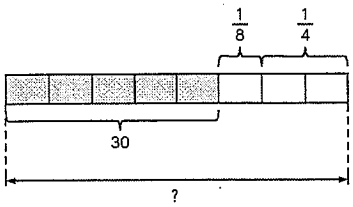


$1 - \frac{1}{4} = \frac{3}{4}$

$\frac{2}{3} \times \frac{3}{4} = \frac{1}{2}$

$\frac{1}{2}$ of the clips are yellow.

12.



$1 - \frac{1}{8} - \frac{1}{4} = \frac{5}{8}$

5 units → 30

1 unit → 6

8 units → $6 \times 8 = 48$

There are 48 pages in the book.

Benchmark Assessment 1 for Chapters 1 to 4

1.	B	2.	D
3.	B	4.	C
5.	A	6.	D
7.	A	8.	A
9.	C	10.	B

11. 700,000

12. 124,678

13. $657 \div 3 = 219$

$219 \times \$4 = \$876$

Billy must pay \$876 for all the mugs.

14. $15 \times 32 = 480$

$480 \div 16 = 30$

There are 30 people in each group.

15. $3\frac{2}{5} + 9\frac{4}{15} = 3\frac{6}{15} + 9\frac{4}{15}$

$= 12\frac{10}{15}$

$= 12\frac{2}{3}$

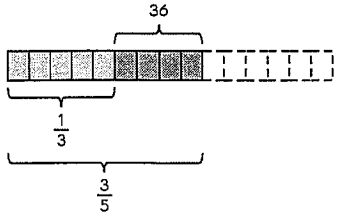
$\frac{2}{5} = \frac{6}{15}$ (×3)

16. $\frac{6}{25} \times \frac{3}{4} = \frac{6 \times 3}{25 \times 4}$

$= \frac{18}{100}$

$= 0.18$

17.



4 units → 36

1 unit → 9

5 units → $5 \times 9 = 45$

Belinda uses 45 beads to make the bracelet.

18. $1\frac{2}{3} + 2\frac{1}{2} = 1\frac{4}{6} + 2\frac{3}{6}$

$= 3\frac{7}{6}$

$= 3 + \frac{7}{6}$

$= 3 + 1\frac{1}{6}$

$= 4\frac{1}{6}$

She baked $4\frac{1}{6}$ pounds of biscuits in all.

19. Width: $\frac{1}{4} \times \frac{2}{5} = \frac{1}{10}$ m

Perimeter $= 2 \times (\frac{2}{5} + \frac{1}{10}) = 1$ m

The perimeter of the rectangle is 1 meter.

20.
$$\begin{array}{r} 16 \\ 8\overline{)132} \\ 80 \\ \hline 52 \\ 48 \\ \hline 4 \end{array}$$

$132 \div 8 = 16$ R 4

The travel company needs to book 17 boats.

21. $1\frac{1}{2} \times \frac{2}{3} + 3\frac{3}{5} \times \frac{5}{6}$

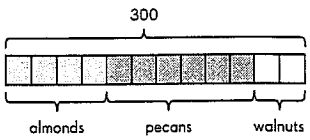
$= \frac{3}{2} \times \frac{2}{3} + \frac{18}{5} \times \frac{5}{6}$

$= 1 + 3$

$= 4$ L

Patrick has 4 liters of purple paint.

22.



12 units → 300
1 unit → 25
2 units → 50
There are 50 walnuts in the bag.

23. $5,170 + $450 + $626 = $6,246
$6,246 ÷ 2 = $3,123
Mrs. Jefferson had $3,123 − $626 = $2,497.
Mr. Jefferson had $3,123 − $450 = $2,673.

Bonus Questions

1. Strategies: Make a systematic list. Guess and check.

10 Gift Cards		Total Number of Sides	Check
Number of Triangles	Number of Squares		
2 × 3 = 6	**8** × 4 = 32	38	✗
3 × 3 = 9	**7** × 4 = 28	37	✗
4 × 3 = 12	**6** × 4 = 24	36	✗
5 × 3 = 15	**5** × 4 = 20	35	✗
6 × 3 = 18	**4** × 4 = 16	34	✓

Leslie has 4 square cards.

2. Strategy: Make a systematic list.

	Number of Eggs					
Groups of 4 eggs + 3	7	11	15	19	23	(27)
Groups of 5 eggs + 2	7	12	17	22	(27)	
Groups of 9 eggs	9	18	(27)			

The least number of eggs the grocer had is 27 eggs.

Pre-Test 5

1. inverse operations
2. equal; greater than; less than
3. order of operations
4. <
5. =
6. <
7. >
8. 9
9. 32, 32
10. 12
11. 76
12. 140
13. 24

14. $2 + (7 - 4) \times 3 = 2 + 3 \times 3$
$= 2 + 9$
$= 11$

15. $(95 - 15) \div 10 = 8$
He needs 8 plastic bags.

Test Prep 5

1. B 2. C 3. A 4. D
5. D
6. $3 + x - 100$
7. \$60 − y or \$(60 − y)
8. a. $17y + 8$ b. $\frac{z - 24}{8} + 2$
9. a. $4x + 3$ $\frac{100x}{20} = \frac{100 \times 9}{20}$
$= (4 \times 9) + 3$ $= \frac{900}{20}$
$= 36 + 3$ $= 45$
$= 39$
$4x + 3 \text{ (<) } \frac{100x}{20}$

b. $(100 - 2x) \div 2$ $4 \times (x + 1)$
$= (100 - 2 \times 9) \div 2$ $= 4 \times (9 + 1)$
$= (100 \div 18) \div 2$ $= 4 \times 10$
$= 82 \div 2$ $= 40$
$= 41$
$(100 - 2x) \div 2 \text{ (>) } 4 \times (x + 1)$

10. a. $18m - 52 = 5m$
$18m - 52 + 52 = 5m + 52$
$18m = 5m + 52$
$18m - 5m = 5m + 52 - 5m$
$13m = 52$
$13m \div 13 = 52 \div 13$
$m = 4$

b. $4p + 8 = 12p - 16$
$4p + 8 + 16 = 12p - 16 + 16$
$4p + 24 = 12p$
$4p + 24 - 4p = 12p - 4p$
$24 = 8p$
$8p = 24$
$8p \div 8 = 24 \div 8$
$p = 3$

11. a. $3 \times p = 3p$
$3p + 2$
Cheryl has $3p + 2$ oranges.
b. $3p + 2 = 3 \times 6 + 2$
$= 20$
Cheryl has 20 oranges.

12. a. If $y = 3$,

Ernie → $3y + 4 = 3 \times 3 + 4 = 13$

Gladice → $4y - 5 = 4 \times 3 - 5 = 7$

Ernie read more books.

b. $3y + 4 = 4y - 5$

$3y + 4 + 5 = 4y - 5 + 5$

$3y + 9 = 4y$

$3y + 9 - 3y = 4y - 3y$

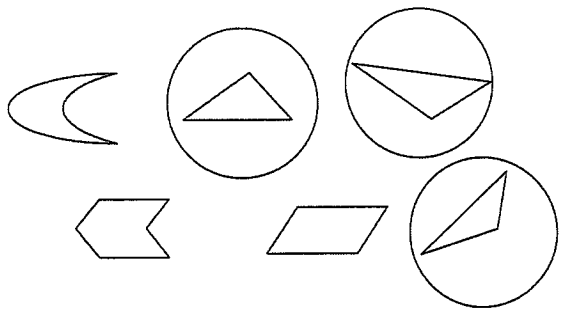
$9 = y$

$y = 9$

When $y = 9$, both of them will read the same number of books.

Pre-Test 6

1. area
2. square units
3. triangles
4. formula
5.



6. a. obtuse angle
   b. right angle
   c. acute angle
7. b
8.

9. 48 cm^2
10. 12 $in.^2$
11. 175 ft^2
12. 81 yd^2
13. 680 m^2
14. $3 \text{ m} \times 2 \text{ m} = 6 \text{ m}^2$

    The garden's area is 6 square meters.
15. Area of land $= 50 \times 50 = 2{,}500 \text{ m}^2$

    Area of land and footpath $= 56 \times 56$

    $= 3{,}136 \text{ m}^2$

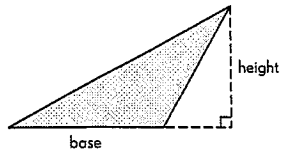
    Area of footpath $= 3{,}136 - 2{,}500 = 636 \text{ m}^2$

    The area of the footpath is 636 square meters.

Test Prep 6

1. B
2. D
3. A
4. C
5. B

6.



7. Base: $\overline{DC}$

   Height: $\overline{BD}$
8. Area of triangle $CDE = \frac{1}{2} \times \text{base} \times \text{height}$

   $= \frac{1}{2} \times 24 \text{ m} \times 24 \text{ m}$

   $= 288 \text{ m}^2$
9. Area of the shaded triangle

   $= \frac{1}{2} \times \text{base} \times \text{height}$

   $= \frac{1}{2} \times 20 \text{ cm} \times 5 \text{ cm}$

   $= 50 \text{ cm}^2$
10. Area of the rectangle $= 15 \text{ in.} \times 20 \text{ in.}$

    $= 300 \text{ in.}^2$

    Area of the 2 triangles

    $= \frac{1}{2} \times 8 \text{ in.} \times 15 \text{ in.} + \frac{1}{2} \times 6 \text{ in.} \times 15 \text{ in.}$

    $= 60 \text{ in.}^2 + 45 \text{ in.}^2$

    $= 105 \text{ in.}^2$

    Area of the shaded part $= 300 \text{ in.}^2 - 105 \text{ in.}^2$

    $= 195 \text{ in.}^2$
11. Area of the rectangle $= 8 \text{ cm} \times 9 \text{ cm} = 72 \text{ cm}^2$

    Area of the unshaded triangle

    $= \frac{1}{2} \times 8 \text{ cm} \times 9 \text{ cm} = 36 \text{ cm}^2$

    Area of the shaded part of the figure

    $= 72 \text{ cm}^2 - 36 \text{ cm}^2$

    $= 36 \text{ cm}^2$
12. Length of the rectangle $= (60 - 24) \div 2$

    $= 18 \text{ m}$

    Area of the rectangle $= 18 \times 12 = 216 \text{ m}^2$

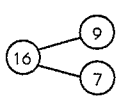
    Area of the shaded part of the figure

    $= 216 - (\frac{1}{2} \times 18 \times 8) - (\frac{1}{2} \times 12 \times 4)$

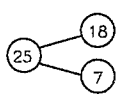
    $= 120 \text{ m}^2$

Pre-Test 7

1. numerator; denominator
2. bar model
3.



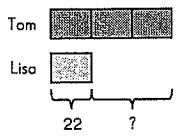
4.



5. 2 out of 7 parts
6. 8 out of 9 parts

7. $\frac{9}{12} = \frac{3}{4}$ 8. $\frac{24}{60} = \frac{2}{5}$

9. From the model,
5 parts → 30
1 part → 6
8 parts → 8 × 6 = 48
3 parts → 3 × 6 = 18
A = 48; B = 18

10. 

22 × 2 = 44
Tom has 44 more stamps than Lisa.

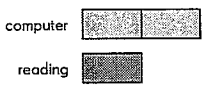
Test Prep 7

1. A 2. C 3. B 4. D
5. C
6. Number of black beads = 7 + 12 + 9
= 28
Number of white beads = 9 + 3 + 4
= 16

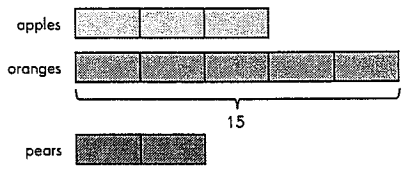
$\frac{28}{16} = \frac{7}{4}$

The number of black beads is $\frac{7}{4}$ times the number of white beads.

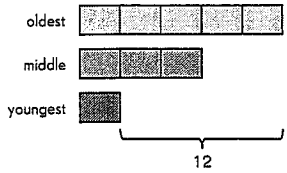
7. 5 : (4) : 9 = (15) : 12 : 27

8. 

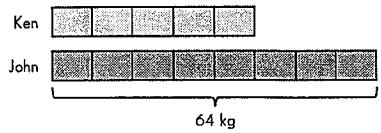
The ratio of the time Ron spends reading to the time he spends on the computer to the total time he spends on both activities is 1 : 2 : 3.

9. 

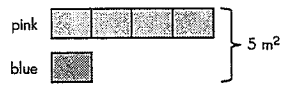
5 units → 15
1 unit → 15 ÷ 5 = 3
Total number of units = 3 + 5 + 2 = 10
10 × 3 = 30
There are 30 fruits in all.

10. 

4 units → 12 years
3 units → (12 ÷ 4) × 3 = 9 years
The middle child is 9 years old.

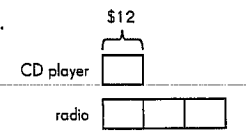
11. 

a. 5 : 8
b. 8 units → 64 kg
3 units → (64 ÷ 8) × 3 = 24 kg
John is 24 kilograms heavier than Ken.

12. 

a. 1 : 4
b. 5 units → 5 m²
4 units → (5 ÷ 5) × 4 = 4 m²
The area of the part of the door that is painted pink is 4 square meters.

Mid-Year Test

1. C 2. C 3. A 4. A
5. B 6. D 7. C 8. B
9. D 10. B
11. 4,192,560
12. 6,315 → 6,000
72 → 70
6,000 × 70 = (6,000 × 7) × 10
= 420,000
13. 32 + (25 ÷ 5) − 21 ÷ 7 = 32 + 5 − 21 ÷ 7
= 32 + 5 − 3
= 34
14. $\frac{4}{5} \div 20 = \frac{4}{5} \times \frac{1}{20} = \frac{4}{100} = 0.04$
15. 

1 unit → $12
3 units → 3 × $12 = $36
The radio costs $36.

16. $2\frac{3}{4} - \frac{1}{5} = 2\frac{15}{20} - \frac{4}{20} = 2\frac{11}{20}$

$2\frac{3}{4} + 2\frac{11}{20} = 2\frac{15}{20} + 2\frac{11}{20}$

$= 4\frac{26}{20}$

$= 5\frac{6}{20} = 5\frac{3}{10}$

It takes $5\frac{3}{10}$ hours to complete both projects.

17. Area of the rectangle $= 10 \text{ cm} \times 24 \text{ cm}$
$= 240 \text{ cm}^2$

Area of the unshaded parts

$= 2 \times (\frac{1}{2} \times 5 \text{ cm} \times 12 \text{ cm}) = 60 \text{ cm}^2$

Area of the shaded part $= 240 \text{ cm}^2 - 60 \text{ cm}^2$
$= 180 \text{ cm}^2$

18. Pens $\rightarrow x$
Rulers $\rightarrow 5 \times x = 5x$
Pencils $\rightarrow x - 3$
$x + 5x + (x - 3) = 7x - 3$

They sold a total of $7x - 3$ items at the carnival.

19. Sandy's age : Tammy's age $= 1 : 4$
Jim's age : Tammy's age $= 2 : 1 = 8 : 4$
Jim's age : Tammy's age : Sandy's age $= 8 : 4 : 1$

The ratio of Jim's age to Tammy's age to Sandy's age is 8 : 4 : 1.

20. Area of triangle $PQR = \frac{1}{2} \times 15 \text{ in.} \times 36 \text{ in.}$
$= 270 \text{ in.}^2$

Area of triangle $QRS = \frac{1}{2} \times 15 \text{ in.} \times 16 \text{ in.}$
$= 120 \text{ in.}^2$

Area of the shaded part $= 270 \text{ in.}^2 - 120 \text{ in.}^2$
$= 150 \text{ in.}^2$

21.

Quarter	Dime	Total Amount	Check ($22.40)
10	3	\$2.50 + \$0.30 = \$2.80	✗
60	18	\$15 + \$1.80 = \$16.80	✗
70	21	\$17.50 + \$2.10 = \$19.60	✗
80	24	\$20 + \$2.40 = \$22.40	✓

There are 80 quarters and 24 dimes.

22. 2 boxes of crayons $\rightarrow$ \$18 − \$10 = \$8
1 box of crayons $\rightarrow$ \$8 ÷ 2 = \$4
3 erasers $\rightarrow$ \$10 − \$4 = \$6
1 eraser $\rightarrow$ \$6 ÷ 3 = \$2
1 box of crayons and 1 eraser $\rightarrow$ \$4 + \$2 = \$6
1 box of crayons and 1 eraser cost \$6.

23. $\frac{2}{5}$ of the books are fiction books.

So, $1 - \frac{2}{5} = \frac{3}{5}$ of the books are non-fiction books.

Total number of fiction mystery books

$= \frac{2}{5} \times \frac{1}{5} = \frac{2}{25}$

Total number of non-fiction mystery books

$= \frac{3}{5} \times \frac{1}{3} = \frac{1}{5}$

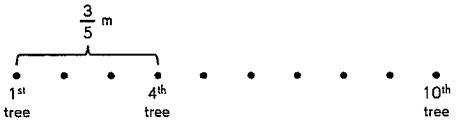
$\frac{2}{25} + \frac{1}{5} = \frac{7}{25}$

$\frac{7}{25}$ of all the books in the shop are mystery books.

Bonus Questions

1. Strategy: Simplify the problem.
Area of the whole figure $= 15 \times 15$
$= 225 \text{ cm}^2$
Area of the shaded part $= 5 \times 5$
$= 25 \text{ cm}^2$
Area of the unshaded part $= 225 - 25$
$= 200 \text{ cm}^2$
The area of the unshaded part of the figure is 200 square centimeters.

2. Strategy: Draw a diagram.



Distance between each tree $= \frac{3}{5} \div 3 = \frac{1}{5}$ m

Distance between 1st and 10th tree $= \frac{1}{5} \times 9$
$= \frac{9}{5}$
$= 1\frac{4}{5}$ m

The distance between the 1st tree and the 10th tree is $1\frac{4}{5}$ meters.

Pre-Test 8

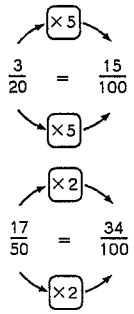
1. tenths
2. hundredths
3. nearest whole number
4. nearest tenth
5. decimals

6. a. 1.7 b. 10.18

7. a. 1.6 b. 3.28

8. 4.13 9. 9.2

10. $\frac{3}{20} = \frac{15}{100} = 0.15$



11. $3\frac{17}{50} = 3 + \frac{17}{50}$
$= 3 + \frac{34}{100}$
$= 3 + 0.34 = 3.34$

12. 3; 2.7 13. 5; 5.2

14. 10; 9.6 15. 1; 1.0

16. 8; 7.9 17. 3; 3.0

18. $1\frac{2}{5} - \frac{17}{20} = \frac{7}{5} - \frac{17}{20} = \frac{28}{20} - \frac{17}{20}$
$= \frac{11}{20}$

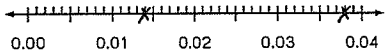
$\frac{11}{20} = \frac{11 \times 5}{20 \times 5} = \frac{55}{100} = 0.55$ m

0.55 m is about 0.6 m.
The length of the remaining piece of ribbon is about 0.6 m.

Test Prep 8

1. B 2. C 3. D 4. A

5. B

6. 

7. a. $5\frac{18}{1000}$
= 5 ones and 1 hundredth 8 thousandths
= 5.018

b. $2\frac{349}{1000}$
= 2 ones and 3 tenths 4 hundredths 9 thousandths
= 2.349

8. 3.178 3.6 6.63 10.1

9. 8.275 = 8 + 0.2 + 0.07 + 0.005

10. 1.650 rounded to the nearest tenth is 1.7.
1.649 rounded to the nearest tenth is 1.6.
So, the greatest possible decimal is 1.649.

11. 850 mL = $\frac{850}{1000}$ L = 0.85 L
1,200 mL = 1.2 L
1.2 L + 0.85 L = 2.05 L
She makes 2.05 liters of fruit punch.

12. 6.149 rounded to the nearest tenth is 6.1.
6.150 rounded to the nearest tenth is 6.2.
So, the shortest possible height of the vase is 6.150 feet.

Pre-Test 9

1. multiplied by 10 2. divided by 1,000

3. estimation 4. 370

5. 13,600 6. 85,000

7. 92 × 30 = 92 × (3 × 10)
= (92 × 3) × 10
= 276 × 10
= 2,760

8. 381 × 500 = 381 × (5 × 100)
= (381 × 5) × 100
= 1,905 × 100
= 190,500

9. 76 × 8,000 = 76 × (8 × 1,000)
= (76 × 8) × 1,000
= 608,000

10. 640

11. 39

12. 8

13. 540 ÷ 90 = (540 ÷ 9) ÷ 10
= 60 ÷ 10
= 6

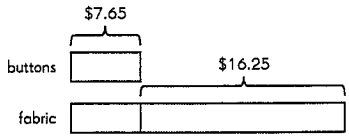
14. 6,300 ÷ 700 = (6,300 ÷ 7) ÷ 100
= 900 ÷ 100
= 9

15. 72,000 ÷ 8,000 = (72,000 ÷ 8) ÷ 1,000
= 9,000 ÷ 1,000
= 9

16. 623 rounds to 600.
59 rounds to 60.
600 × 60 = (600 × 6) × 10
= 3,600 × 10
= 36,000
623 × 59 is about 36,000.

17. 9,842 rounds to 9,800.
36 rounds to 40.
9,800 ÷ 40 = (9,800 ÷ 4) ÷ 10
= 2,450 ÷ 10
= 245
9,842 ÷ 36 is about 245.

18.



a. $7.65 + $16.25 = $23.90
Suzanne paid $23.90 for the items.

b. $50 − $23.90 = $26.10
She got $26.10 in change.

19. a. 208 × 50 = 208 × (5 × 10)
= (208 × 5) × 10
= 1,040 × 10
= 10,400
There are 10,400 roses in all.

b. 10,400 ÷ 20 = (10,400 ÷ 2) ÷ 10
= 5,200 ÷ 10
= 520
He needs 520 boxes

Test Prep 9

1. B
2. C
3. A
4. D
5. C
6. a. 1,000 b. 100
7. $\begin{array}{r} {}^{5}\,6.{}^{2}8\,4 \\ \times \qquad 7 \\ \hline 4\,7.8\,8 \end{array}$
8. a. 23.63 rounds to 24.
15.3 rounds to 15.
24 + 15 = 39
23.63 + 15.3 is about 39.

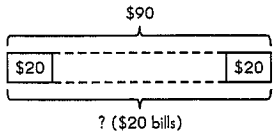
b. 17.85 rounds to 18.
9.49 rounds to 9.
18 − 9 = 9
17.85 − 9.49 is about 9.

9. 5 m ÷ 8 = 0.625 m
0.625 rounded to the nearest hundredth is 0.63.
Each piece of rope is about 0.63 meter long.

10. 1.065 lb × 8 = 8.52 lb
15 lb − 8.52 lb = 6.48 lb
6.48 pounds of flour is left after 8 days.

11. Cost of 2 pounds of grapes = 2 × $2.49
= $4.98
Cost of 3 muffins = 3 × $0.75 = $2.25
$4.98 + $2.25 = $7.23
He paid $7.23 for the grapes and muffins.

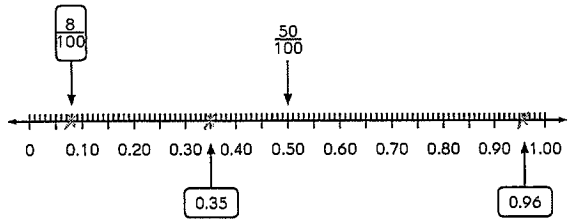
12.



$27.90 is about $30.
3 × $30 = $90
The total cost of 3 chairs is about $90.
$90 ÷ $20 = 4.5
He needs at least 5 $20 bills to buy the chairs.

Pre-Test 10

1. out of
2. decimal
3. fraction
4. equivalent; denominator
5. 0.28
6. 0.73
7. $\frac{19}{100}$
8. $\frac{91}{100}$
9. 3; 40
10. 79; 100
11. 58; 100
12. 32; 100
13. $\frac{9}{12} = \frac{3}{\boxed{4}} = \frac{\boxed{75}}{100}$
14. $\frac{4}{\boxed{7}} = \frac{16}{\boxed{28}} = \frac{28}{49}$
15. $\frac{2}{5} = \frac{4}{\boxed{10}} = \frac{18}{\boxed{45}}$
16. $\frac{9}{25} = \frac{18}{\boxed{50}} = \frac{\boxed{36}}{100}$
17. $\frac{14}{25}$
18. $\frac{3}{4}$
19. $\frac{1}{2}$
20. $\frac{4}{5}$
21.



22. 300 g = $\frac{300}{1000}$ = 0.3 kg
1.4 kg + 0.3 kg = 1.7 kg
The mass of the mixture is 1.7 kilograms.

23. 2.4 − (1.75 + 0.2) = 0.45 L
0.45 L = $\frac{45}{100}$ L = $\frac{9}{20}$ L
$\frac{9}{20}$ liter of lemonade is left.

Test Prep 10

1. D 2. A 3. C 4. B

5. D

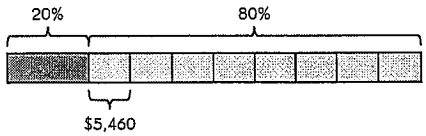
6. $45\% = \frac{45}{100} = \frac{45 \div 5}{100 \div 5} = \frac{9}{20}$

7. Total number of people = 200
   Number of women = 200 − 80 = 120
   $\frac{120}{200} = \frac{60}{100} = 60\%$
   60% of the people are women.

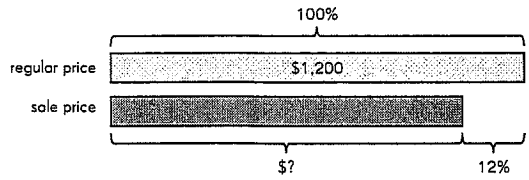
8. Total number of students = 680
   Number of girls = $55\% \times 680$
   $= \frac{55}{100} \times 680$
   $= 374$
   Number of boys = 680 − 374 = 306
   374 − 306 = 68
   There are 68 more girls than boys.

9. 100% − 75% − 12% = 13%
   13% are green beads.
   13% → 104 beads
   1% → 104 ÷ 13 = 8 beads
   12% → 12 × 8 = 96 beads
   Lucy has 96 blue beads.

10. 100% → $3,500
    1% → $3,500 ÷ 100 = $35
    72% → $35 × 72 = $2,520
    He spends $2,520.
    $3,500 − $2,520 = $980
    25% of $980 = $245
    He saves $245.
    $980 − $245 = $735
    Mr. Daniels' rent is $735.

11. 

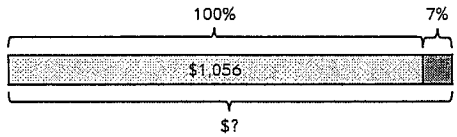
$5,460 × 8 = $43,680
80% → $43,680
1% → $\frac{\$43,680}{80}$ = $546
20% → $546 × 20 = $10,920
Cost of the car = $43,680 + $10,920
= $54,600
The car costs $54,600.

12. 

a. **Method 1**
100% → $1,200
1% → $1,200 ÷ 100 = $12
12% → 12 × $12 = $144
The dollar amount of the discount was $144.

Method 2
Discount = 12% of regular price
$= \frac{12}{100} \times \$1,200$
= $144

b. $1,200 − $144 = $1,056
The airline ticket cost $1,056.



100% → $1,056
1% → $1,056 ÷ 100 = $10.56
7% → 7 × $10.56 = $73.92
$1,056 + $73.92 = $1,129.92
Mr. Sims paid $1,129.92.

Benchmark Assessment 2 for Chapters 8 to 10

1. B 2. C 3. B 4. C
5. A 6. A 7. D 8. C
9. D 10. B

11. 3 tens and 25 thousandths = 30.025

12. $\frac{9675}{1000} = 9.675$
    9.675 is nearer to 10 than to 9.
    So, 9.675 rounds to 10.

13. $7.065 = 7\frac{65}{1000} = 7\frac{13}{200}$

14. 900 × 3.168
    = (100 × 9) × 3.168
    = 100 × (9 × 3.168)
    = 100 × 28.512
    = 2,851.2

```
  1 6 7
  3.1 6 8
×       9
-------
 2 8.5 1 2
```

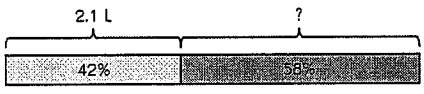
15. 6.24 ÷ 10 = 0.624
    624 ÷ 1,000 = 0.624
    So, 6.24 ÷ 10 = 624 ÷ 1,000

16. 8.75 pounds rounds to 9 pounds.
36 rounds to 40.
Weight of 1 chicken drumstick
$= 9 \text{ lb} \div 40$
$= \frac{9}{40}$
$= \frac{9 \times 25}{40 \times 25}$
$= \frac{225}{1000}$
$= 0.225 \text{ lb}$
Each chicken drumstick weighs about 0.225 pound.

17. Number of non-school holidays in April
$= 30 - 6 = 24$
$\frac{24}{30} \times 100\% = 80\%$
80% of the days in April are not school holidays.

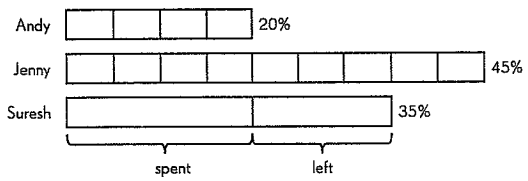
18. 15% of \$360 $= \frac{15}{100} \times \$360 = \$54$
18% of \$720 $= \frac{18}{100} \times \$720 = \$129.60$
Difference $= \$129.60 - \$54 = \$75.60$

19.



42% → 2.1 L
1% → $2.1 \div 42 = 0.05$ L
58% → $58 \times 0.05 = 2.9$ L
Leon used 2.9 liters of brown paint.

20.

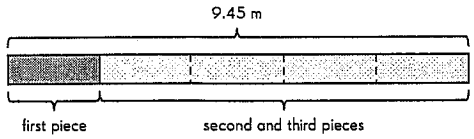


$\frac{3}{5} \times 35\% = \frac{3}{5} \times \frac{35}{100} = \frac{105}{500} = \frac{21}{100} = 21\%$
Suresh spends 21% of the total amount of money.
$35\% - 21\% = 14\%$
Suresh has 14% of the total amount of money left.

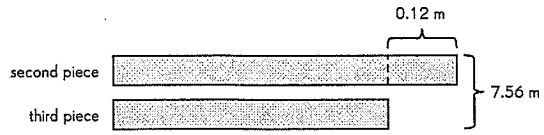
21.

5 parts → 2.15 qt
1 part → $2.15 \div 5 = 0.43$ qt
4 parts → $4 \times 0.43 = 1.72$ qt
$1.72 \text{ qt} + 0.18 \text{ qt} = 1.9 \text{ qt}$
There were 1.9 quarts of oil in the container at first.

22.

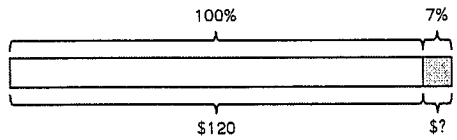


5 units → 9.45 m
1 unit → 1.89 m
4 units → 7.56 m
The second and third pieces of rope were 7.56 meters long.



$7.56 \text{ m} - 0.12 \text{ m} = 7.44 \text{ m}$
2 units → 7.44 m
1 unit → 3.72 m
$3.72 \text{ m} + 0.12 \text{ m} = 3.84 \text{ m}$
The second piece of rope was 3.84 meters long.

23. a.



100% → \$120
1% → $\$120 \div 100 = \$1.20$
7% → $7 \times \$1.20 = \$8.40$
The tax was \$8.40.

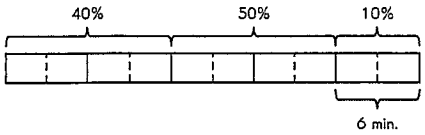
b. 15% → $15 \times \$1.20 = \$18$
The tip was \$18.

c. Total cost of the meal
$= \$120 + \$8.40 + \$18$
$= \$146.40$
$\$146.40 \div 5 = \$29.28$
Each of them had to pay \$29.28.

Bonus Questions

1. Strategy: Make logical deduction.
Volume of 9 bottles = Volume of 12 pails
Divide both sides by 3:
Volume of 3 bottles = Volume of 4 pails
Volume of 3 bottles and 5 pails
= Volume of 4 pails + Volume of 5 pails
21.6 L = Volume of 9 pails
Volume of 9 pails = 21.6 L
Volume of 1 pail = $21.6 \div 9$
$= 2.4$ L
The volume of 1 pail is 2.4 liters.

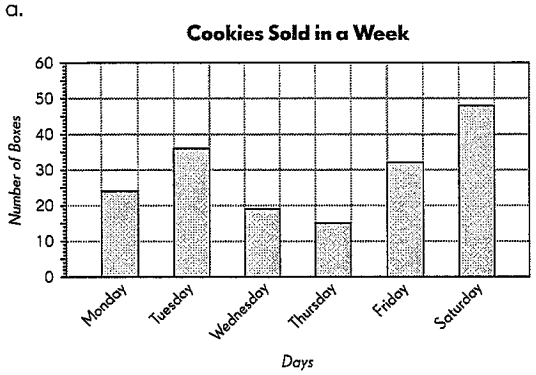
2. Strategy: Draw a model.



100% − (50% + 40%) = 10%
10% → 6 min.
100% → 6 × 10 = 60 min.
60 min. ÷ 5 = 12 min.
Pauline should have spent 12 minutes on each question.

Pre-Test 11

1. mean
2. table; tally chart
3. graph
4. probability
5. more likely
6. impossible
7. a.



b. Saturday

8. 1.2 kg = 1,200 g
Total mass of the 4 objects
= 45 g + 76 g + 103 g + 1,200 g
= 1,424 g
Average mass = 1,424 g ÷ 4 = 356 g

9. a. less likely
b. impossible
c. certain
d. less likely

10. a. $\frac{1}{6}$

b. $\frac{2}{6} = \frac{1}{3}$

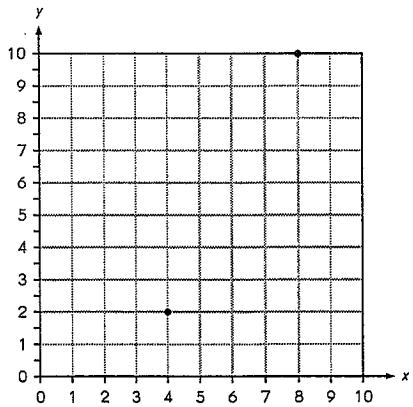
c. $\frac{3}{6} = \frac{1}{2}$

11. a. 19 quarters
b. 24 − 15 = 9
He saved 9 more quarters in Week 2 than in Week 1.
c. 15 + 24 + 19 + 30 = 88
He saved 88 quarters in 4 weeks.
d. 88 × 25¢ = 88 × $0.25 = $22
Bob saved $22.
e. $22 ÷ 4 = $5.50
He saved an average of $5.50 per week.

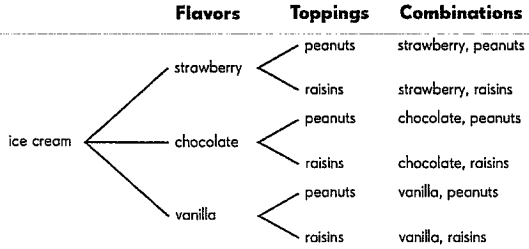
12. Total amount of water in the 5 containers
= mean amount of water × number of containers
= 620 mL × 5
= 3,100 mL
Amount of water in the fifth container
= 3,100 mL − 2,750 mL
= 350 mL
The amount of water in the fifth container is 350 mL.

Test Prep 11

1. C 2. C 3. A 4. D
5. B
6. a. George: $32 + $25 + $40 = $97
Henry: $36 + $34 + $29 = $99
Henry made more money.
b. $99 − $97 = $2
He made $2 more.
7.



8. 7 meters
9.



The shop can offer 3 × 2 = 6 combinations.

10. a. Number of times a black ball is drawn
$= 50 - 15 - 26 = 9$
Experimental probability $= \frac{9}{50}$

b. Theoretical probability $= \frac{3}{5 + 3 + 4} = \frac{3}{12}$
$= \frac{1}{4}$

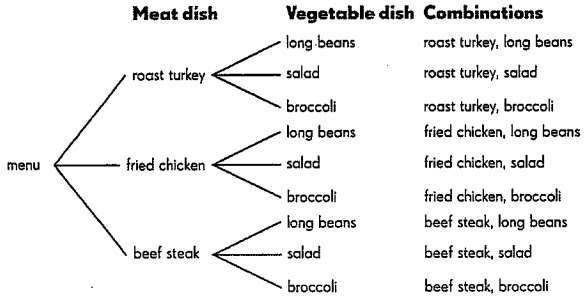
Experimental probability $= \frac{26}{50}$

$\frac{26}{50} - \frac{1}{4} = \frac{52}{100} - \frac{25}{100} = \frac{27}{100}$

The difference between the theoretical probability and the experimental probability of getting a green ball is $\frac{27}{100}$.

11. From the graph,
45 ft → 15 yd
72 ft → 24 yd
Area of land = 15 yd × 24 yd = 360 yd^2
The area of the rectangular plot of land is 360 square yards.

12. a.



She can choose from 3 × 3 = 9 combinations.

b. Ms. Spencer can choose from 4 × 3 = 12 combinations.

Pre-Test 12

1. line; points
2. line segment
3. rays; angle
4. perpendicular lines
5. right angle
6. points; line
7. line segment; ray
8. $\overline{EF}$ and $\overline{CD}$
9. a. 4 b. 360°
10. 
11. $\angle TUV$ or $\angle VUT$
12. $\angle BOC$ or $\angle COB$
13. 65°
14. 125°
15. Measure of $\angle x = 90° - 12° = 78°$
16. Measure of $\angle y = 45° - 18° = 27°$

Test Prep 12

1. A 2. B 3. C 4. D
5. C
6. $86° + x + x = 180°$
$x + x = 180° - 86°$
$2x = 94°$
$x = 94° \div 2 = 47°$
7. $m\angle p + 63° + 90° + 78° = 360°$
$m\angle p + 231° = 360°$
$m\angle p = 360° - 231°$
$= 129°$
8. $m\angle a + 90° = 137°$
$m\angle a = 137° - 90° = 47°$
9. $m\angle ABC = 90°$
$m\angle EBF = m\angle ABD = 90° - 45° = 45°$
The measure of $\angle EBF$ is 45°.
10. $m\angle p + 90° + 90° + 125° = 360°$
$m\angle p + 305° = 360°$
$m\angle p = 360° - 305°$
$= 55°$
11. $m\angle p + 71° + 90° + m\angle q + 90° + m\angle r = 360°$
$m\angle p + m\angle q + m\angle r = 360° - 251°$
$= 109°$
12. $m\angle DBH = 180° - 90° = 90°$
$m\angle CBD = 90° - 45° = 45°$
$m\angle CBH = 90° - 45° = 45°$
$m\angle CBG = m\angle CBH \div 2 = 45° \div 2$
$= 22.5°$
$m\angle DBG = 45° + 22.5° = 67.5°$
$m\angle FBE = m\angle DBG = 67.5°$

Pre-Test 13

1. polygon
2. vertices
3. triangles
4. quadrilaterals
5. trapezoid
6. inequality
7. a. rectangle b. parallelogram c. rhombus
d. square e. triangle f. trapezoid
8. three
9. equal
10. parallel
11. opposite
12. one
13. greater than; less than
14. a. $m\angle \underline{q} + m\angle \underline{p} = 180°$ or
$m\angle \underline{q} + m\angle \underline{x}$; $m\angle \underline{x} + m\angle \underline{DOB}$;
$m\angle \underline{p} + m\angle \underline{DOB}$
b. $m\angle x + m\angle \underline{y} + m\angle \underline{z} = 180°$
c. $m\angle p + m\angle \underline{y} + m\angle \underline{z} = 180°$

15. $<$ 16. $=$

17. $>$ 18. rhombus

19. trapezoid

Test Prep 13

1. A 2. B 3. D 4. C

5. A

6. $m\angle ABC + m\angle BAC + m\angle ACB = 180°$
$52° + 65° + m\angle ACB = 180°$
$m\angle ACB = 180° - 52° - 65°$
$= 63°$
$m\angle BCD = 180° - 63° = 117°$
$m\angle a + 30° + m\angle BCD = 180°$
$m\angle a + 30° + 117° = 180°$
$m\angle a + 147° = 180°$
$m\angle a = 180° - 147°$
$= 33°$

7. a. $m\angle ACB = 180° - 69° - 90° = 21°$
$m\angle BAC \textcircled{>} m\angle ACB$
b. $69° - 21° = 48°$
$m\angle BAC$ is greater than $m\angle ACB$ by 48°.

8. $m\angle CED = 90° - 60° = 30°$
$m\angle a = m\angle CED = 30°$

9. $m\angle BCE = (180° - 56°) \div 2 = 62°$
$m\angle ABC = m\angle ADC = 84°$
$m\angle ABE = 62° + 84° = 146°$

10. $m\angle ABC = m\angle ADC = 76°$
$m\angle CAB = (180° - 76°) \div 2 = 52°$
$m\angle BAE = 180° - 52° = 128°$
$m\angle ABE = (180° - 128°) \div 2 = 26°$
$m\angle a = 360° - 26° - 76° = 258°$
$m\angle CAD = 52°$
$m\angle b = 180° - 52° = 128°$

11. $\angle 35° + \angle 73° + m\angle a + m\angle b + m\angle c + m\angle d = 180° + 180°$
$\angle 108° + m\angle a + m\angle b + m\angle c + m\angle d = 360°$
$m\angle a + m\angle b + m\angle c + m\angle d = 360° - 108° = 252°$
The sum of the measures of $\angle a$, $\angle b$, $\angle c$, and $\angle d$ is 252°.

12. $m\angle EDB = m\angle EAB = 110°$
$m\angle DBE = (180° - 110°) \div 2 = 70° \div 2 = 35°$
$m\angle BDC = 180° - 110° = 70°$
$m\angle CBD = 180° - 70° - 55° = 55°$
$m\angle EBC = 360° - 35° - 55° = 270°$
The measure of $\angle EBC$ is 270°.

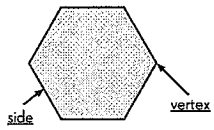
Pre-Test 14

1. plane figure 2. vertices

3. pentagon 4. pyramid

5. congruent

6. The plane figures are B, C, D, and F.
The solid figures are A and E.

7. 

8. sphere 9. cone

10. cube, rectangular prism, or pyramid

11. $\overline{AB} \parallel \overline{CD}$ or $\overline{AD} \parallel \overline{BC}$

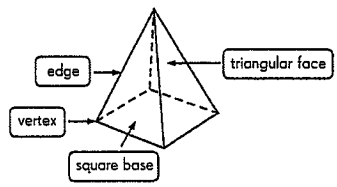
12. B and E, D and H, C and G

Test Prep 14

1. B 2. C 3. D 4. D

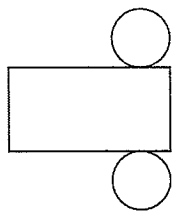
5. A

6. rectangular prism

7. 

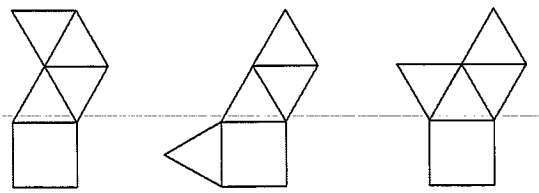
8. It does not have any flat, triangular faces.

9. a. 10 edges and 6 vertices
b. The base is a pentagon. The faces are triangles.

10. 

11. A and C

12. square pyramid

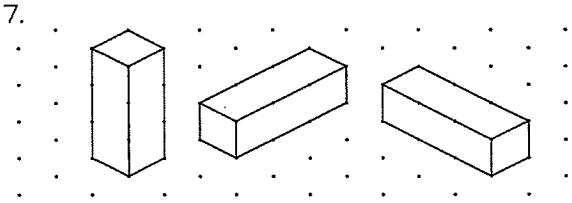


Pre-Test 15

1. square
2. prism
3. triangular prism
4. volume
5. capacity
6. area, formulas
7. triangular prism
8. cube or square prism
9. rectangular prism
10. a. The volume of the juice in the jug is 3.5 quarts.
    b. The capacity of the jug is more than 5 quarts.
11. $\frac{2}{3} \times 30 \text{ L} = 20 \text{ L}$

    The volume of the water in the tank is 20 liters.
12. Area of the bathroom floor $= 2 \text{ m} \times 2 \text{ m} = 4 \text{ m}^2$
    Area of the bedroom and study floor
    $= 8 \text{ m} \times 2 \text{ m}$
    $= 16 \text{ m}^2$
    Area of the living room floor
    $= 6 \text{ m} \times 3 \text{ m}$
    $= 18 \text{ m}^2$
    Total area $= 4 \text{ m}^2 + 16 \text{ m}^2 + 18 \text{ m}^2 = 38 \text{ m}^2$
    The total area of the floor of the apartment is 38 square meters.

Test Prep 15

1. C
2. C
3. B
4. D
5. B
6. 9 cubes are used to build the solid.
7. 
8. Total surface area of the triangular prism
   $= 2 \times 15 \times 16 + 2 \times \frac{1}{2} \times 17 \times 12 + 17 \times 16$
   $= 956 \text{ cm}^2$
9. Length $= 12 \times 2 = 24$ in.
   Volume of wood $= 12 \times 24 \times 8.5$
   $= 2{,}448 \text{ in.}^3$
   The volume of the block of wood is 2,448 cubic inches.
10. Volume of water in the container
    $= 9 \times 12 \times 23 = 2{,}484 \text{ cm}^3 = 2{,}484 \text{ mL}$
    $2{,}484 \text{ mL} \times \frac{2}{3} = 1{,}656 \text{ mL}$
    $2{,}484 \text{ mL} - 1{,}656 \text{ mL} = 828 \text{ mL}$
    She must pour out 828 milliliters of water from the container.
11. Capacity of the tank $= 320 \times 160 \times 200$
    $= 10{,}240{,}000 \text{ cm}^3$
    Volume of water in the tank
    $= \frac{3}{4} \times 10{,}240{,}000$
    $= 7{,}680{,}000 \text{ cm}^3$
    Capacity of a small container $= 16 \times 16 \times 5$
    $= 1{,}280 \text{ cm}^3$
    Number of containers filled with water from the tank
    $= 7{,}680{,}000 \text{ cm}^3 \div 1{,}280 \text{ cm}^3$
    $= 6{,}000$
    The water from the tank can fill 6,000 small containers.
12. Capacity of the tank $= 30 \times 30 \times 50$
    $= 45{,}000 \text{ cm}^3 = 45 \text{ L}$
    $\frac{4}{5} \times 45 \text{ L} = 36 \text{ L}$
    The tank is filled with 36 liters of water.
    6 L → 1 min
    36 L → $36 \div 6 = 6$ min
    It will take 6 minutes to fill $\frac{4}{5}$ of the tank with water.

COMMON CORE Focus Lessons Assessments

Chapter 2

1. 24,900
2. 185,000
3. 320,000
4. 5,700,000
5. 72
6. 48
7. 320
8. 324

Chapter 4

1. 56
2. 30
3. 63
4. 32
5. $5 \div \frac{1}{9} = 5 \times 9$
   $= 45$
   He can make 45 sandwiches with 5 cans of strawberry jam.
6. $6 \div \frac{1}{5} = 6 \times 5$
   $= 30$
   She can make 30 pies.
7. $9 - 5 = 4$ lb
   $4 \div \frac{1}{3} = 4 \times 3$
   $= 12$
   He puts sand into 12 fish tanks.

8. $7 - 3 = 4$ cups

$4 \div \frac{1}{8} = 4 \times 8$

$= 32$

She makes 32 blackberry tarts.

Chapter 6

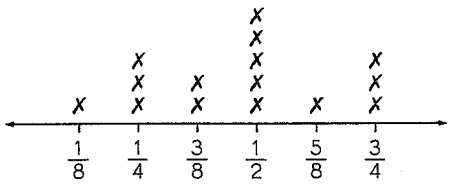
1. $\frac{24}{49}$ ft² 2. $\frac{6}{25}$ yd² 3. $\frac{9}{32}$ ft² 4. $\frac{18}{25}$ in.²

Chapter 9

1. 39 2. 250.4 3. 1,826 4. 9,750

Chapter 11

1.



Volume of Water in Tanks (gal)
Key: Each ✗ stands for 1 tank.

2. 7 gal 3. $\frac{7}{15}$ gal

Chapter 15

1. 912 ft³ 2. 459 m³
3. 2,272 in.³ 4. 6,048 cm³
5. 740 cm³ 6. 4,059 in.³
7. 5,040 in.³ 8. 83,200 cm³

End-of-Year Test

1. B 2. D 3. C 4. B
5. A 6. C 7. A 8. D
9. B 10. C
11.
$$\begin{array}{r} 76 \\ 65 \\ 687 \\ \times \quad 98 \\ \hline 5,496 \\ 61,830 \\ \hline 67,326 \end{array}$$

12.
$$\begin{array}{r} 1.284 \\ 5\overline{)6.42} \\ 5 \\ \hline 14 \\ 10 \\ \hline 42 \\ 40 \\ \hline 20 \\ 20 \\ \hline 0 \end{array}$$

1.284 rounded to the nearest hundredth is 1.28.

13. $6\frac{1}{4} + 2\frac{7}{9} + 1\frac{3}{4} = 8 + 2\frac{7}{9} = 10\frac{7}{9}$

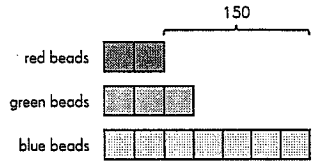
14. $5\frac{1}{2} \times 4 = \frac{11}{2} \times 4$

$= \frac{11 \times 4}{2} = \frac{44}{2} = 22$ lb

The total weight of the charcoal is 22 pounds.

15. $14f + 2$

16.



5 parts → 150
1 part → $150 \div 5 = 30$
12 parts → $12 \times 30 = 360$
There are 360 beads.

17. Number of combinations $= 3 \times 5 = 15$
The teacher can choose from 15 combinations.

18. $m\angle ADC = 180° - 122° = 58°$
$m\angle ADE = 58° + 31° = 89°$
$m\angle DEA = (180° - 89°) \div 2 = 45.5°$

19. rectangular pyramid

20. Area covered by a face of solid B
$= 3 \times 4 = 12$ cm²
Surface area of solid A − 12 cm²
$= 2 \times 10 \times 9 + 2 \times 10 \times (7 + 4) + 2 \times 9 \times (7 + 4) - 12$ cm²
$= 586$ cm²
The total surface area of solid A that is painted red is 586 square centimeters.

21. Amount of juice left $= 7\frac{2}{3} - \frac{5}{6}$

$= 6\frac{5}{6}$ pt

Amount of juice poured into 3 bottles

$= 6\frac{5}{6} \times \frac{3}{4} = 5\frac{1}{8}$ pt

Amount of juice in each bottle

$= 5\frac{1}{8} \div 3 = 1\frac{17}{24}$ pt

Each bottle contains $1\frac{17}{24}$ pints of pineapple juice.

22. Volume of water in the rectangular tank

$= 24 \times 12 \times 10 \times \frac{4}{5}$

$= 2{,}304 \text{ cm}^3 = 2{,}304 \text{ mL}$

Volume of water used to fill the cubical tank

$= 16 \times 16 \times 16 \times \frac{1}{2}$

$= 2{,}048 \text{ cm}^3 = 2{,}048 \text{ mL}$

Volume of water left in the rectangular tank

$= 2{,}304 - 2{,}048 = 256 \text{ mL} = 0.256 \text{ L}$

0.256 liter of water is left in the rectangular tank.

23. Number of buns baked $= 270 \div 3 = 90$

72% of baked products → $90 + 270 = 360$

1% of baked products → $360 \div 72 = 5$

28% of baked products → 5×28

$= 140$ cookies

Number of buns left $= 90 - 40 = 50$

Number of cookies that should be left

$= 2 \times 50 = 100$

Number of cookies that need to be sold

$= 140 - 100 = 40$

The baker should sell 40 cookies so that the ratio of the number of buns left to the number of cakes left to the number of cookies left is 1 : 3 : 2.

Bonus Questions

1. Strategy: Make logical deduction.

Cost of 5 erasers and 30 pencils

= Cost of 10 erasers and 24 pencils

Subtract 5 erasers from each side:

Cost of 30 pencils = Cost of 5 erasers and 24 pencils

Subtract 24 pencils from each side:

Cost of 6 pencils = Cost of 5 erasers

Cost of 5 erasers $= 5 \times \$0.30 = \$1.50$

Cost of 1 pencil $= \frac{\$1.50}{6} = \$0.25$

Each pencil costs $0.25.

2. Strategy: Simplify the problem.

Area of each small triangle in figure 2

$= 128 \text{ cm}^2 \div 4 = 32 \text{ cm}^2$

Area of each smaller triangle in figure 3

$= 32 \text{ cm}^2 \div 4 = 8 \text{ cm}^2$

Area of each smallest triangle in figure 4

$= 8 \text{ cm}^2 \div 4 = 2 \text{ cm}^2$

The area of the smallest equilateral triangle in figure 4 is 2 square centimeters.