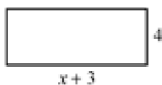## Pre-Algebra Mastery Test #7 Review

Find the value of x for the figure.

1   Perimeter $= 28$

2   A teacher has 98 stickers, 28 buttons, and 196 ribbons. He wants to divide them so that each portion has an equal number of stickers, an equal number of buttons, and an equal number of ribbons. What is the maximum number of portions he can make?

Find the least common multiple of the monomials.

3 $12ef, 16e^2$

Find the product. Write your answer in scientific notation.

4 $\left(2.2 \times 10^{-4}\right) \times \left(1.3 \times 10^{-4}\right)$

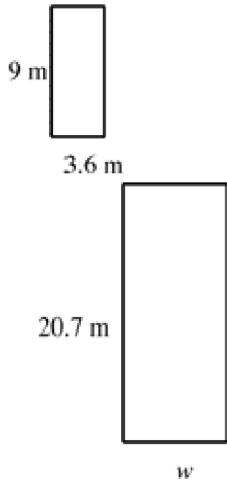Solve the equation. Check your solution.

5 $50 = \dfrac{5}{2}x$

6 $-\dfrac{1}{3}y + 45 = 51$

Solve the proportion.

7 $\dfrac{6}{n} = \dfrac{4}{5.7}$

8 The two rectangles are similar. Find the width of the larger rectangle. (The figures may not be drawn to scale.)
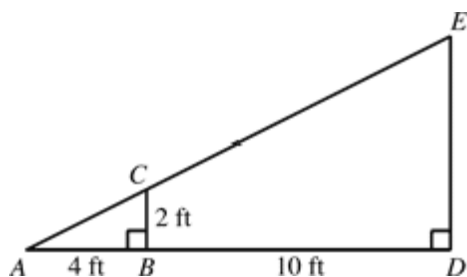
9 m

3.6 m

20.7 m

w

9 The smaller box is 2 feet tall and casts a shadow of 8 feet. The larger box is 4 feet tall. (The figures may not be drawn to scale.)
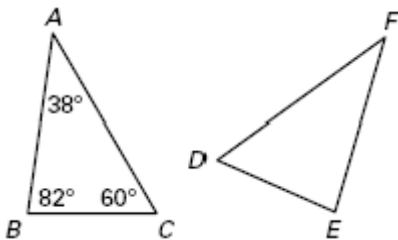
2 ft

4 ft

8 ft

?

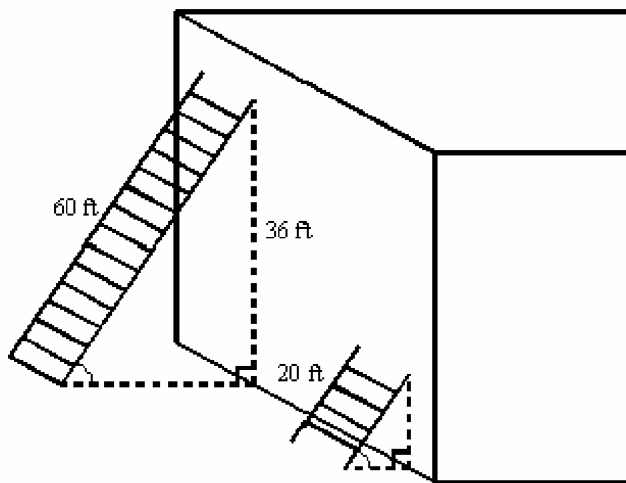How long of a shadow does the larger box cast?

10 The extendable ramp shown below is used to move crates of fruit to loading docks of different heights. $\triangle ABC$ and $\triangle ADE$ are similar. When the horizontal distance AB is 4 feet, the height of the loading dock, BC, is 2 feet. Which is the height of the loading dock, DE?

E

C

2 ft

A   4 ft   B   10 ft   D

11 A jar contains 10 blue marbles, 4 red marbles, and 8 white marbles. What are the odds of drawing a blue marble from the bag?

12 A spinner has five equal portions colored orange, red, blue, yellow, and green. What are the odds against spinning a red or an orange?

13 A number cube with the numbers 1 through 6 is rolled. Find the probability of rolling the number 4.

14 A teacher bought museum tickets for 20 students. The total cost of the tickets was $80. What was the cost per student?

15 An insect is traveling at a rate of 40 cm per minute. About how many inches per minute does it travel?

16 If you can buy 5 pounds of pasta for $8, how many pounds of pasta can you buy for $20?

17 Given $\triangle ABC \cong \triangle DEF$, what is the measure of $\angle F$?

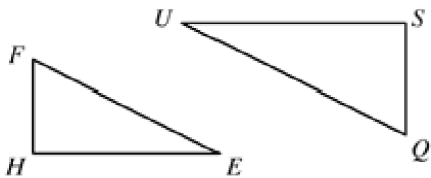**18** Two ladders are leaning against a wall at the same angle as shown.

How far up the wall does the shorter ladder reach?

19 Use a tree diagram to find the number of choices that are possible if you choose one of 3 books, one of 4 folders, and one of 4 binders.

Name the corresponding sides and the corresponding angles.

20 $\Delta FHE \sim \Delta QSU$

Write the percent as a fraction.

21 6%

Write the fraction as a percent.

22 $\frac{37}{50}$

Use a proportion to answer the question.

23 What number is 85% of 180?

24 Millie correctly answered 21 questions on a science test. She received a score of 70%. How many questions were on the test?

Write the decimal as a percent.

25 0.728

Write the percent as a decimal.

26 83.4%

Find the percent of the number.

27 18.6% of 210

28 During the hockey season, Susan scored goals on 16% of the shots she took. If she scored 96 goals, how many shots did she take?

29 What is a salesperson's commission on a $300 sale if the commission rate is 10%?

Find the new amount.

30 Increase 60 by 90%.

31 Decrease 10 by 80%.

32 In 1990, the circulation of a local newspaper was 1860. In 1991, its circulation was 5180. Find the percent of change in the newspaper's circulation. Is this a percent of increase or decrease?

33 Use the given information to find the new amount.

Original price: $10
Discount percent: 15%

34 An article regularly selling for $46.61 is advertised at 25% off. Find the sale price to the nearest cent.

35 Theatre Outfitters International is advertising full-size movie screens for 55% off the regular price. If the regular price of a full-size screen is $500, find the amount of the discount.

36 The sales tax rate in a certain state is 5%. Find the total price paid for a pair of shoes that costs $38.

Use the simple interest formula to find the unknown quantity.

37 $I = \$90$
$P = \underline{\ ?\ }$
$r = 4\%$
$t = 3$ months

38 $I = \$1800$
$P = \$3200$
$r = \underline{\ ?\ }$
$t = 9$ years

Find the simple interest earned on the account.

39 $P = \$700, r = 4.5\%, t = 5$ years

Pre-Algebra Mastery Test #7 Review
Answer Section

1 7

2 14

3 $48e^2 f$

4 2.86×10^{-8}

5 20

6 −18

7 $n = 20$

8 8.28 m

9 16 ft

10 7 ft

11 $\dfrac{5}{6}$

12 $\dfrac{3}{2}$

13 $\dfrac{1}{6}$

14 $4 per student

15 16 inches per minute

16 12.5 pounds

17 60°

18 12 ft

19 48 choices

20 corresponding sides: $\overline{FH}$ and $\overline{QS}$, $\overline{FE}$ and $\overline{QU}$, $\overline{HE}$ and $\overline{SU}$; corresponding angles:
$\angle F$ and $\angle Q$, $\angle H$ and $\angle S$, $\angle E$ and $\angle U$

21 $\dfrac{3}{50}$

22 74%

23 153

24 30

25 72.8%

26 0.834

27 39.06

28 600

29 $30

30 114

31 2

32 178.5%; increase

33 $8.50

34 $34.96

35 $275
36 $39.90
37 $9000
38 6.25%
39 $157.50