SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

1) Solve the proportion: \( \frac{x - 1}{x + 2} = \frac{3}{4} \)

2) Solve the following equation: \( \frac{2.5}{5} = \frac{0.05}{r} \)

3) Solve the proportion: \( \frac{x}{6} = \frac{5}{2} \)

4) Solve the proportion: \( \frac{4x}{15} = \frac{6}{5} \)

5) Select a fraction that is proportional to \( \frac{4}{7} \).

6) Solve the following equation: \( \frac{7 + y}{2} = \frac{7}{8} \)

7) A carpenter can install seven doors in five hours. How long will it take him to install 12 doors? Round to the nearest hundredth hour.

8) Solve the following using proportions: If 4 cans of cat food sell for $1.92, how much will 12 cans sell for?

9) A coffee company mixes 1.6 lb of French Roast beans with every 3.3 lb of Kona beans. How many pounds of French Roast are needed to make 3,000 lb of the coffee blend?

10) Solve the given problem: A licensed plumber can install 5 sinks in 4 hours. How many sinks can be installed in 32 hours?

11) Solve the following using a constant of variation:

How much fertilizer does 3,246 square feet of lawn need if the fertilizer treats 1,500 square feet per gallon? Express to nearest tenth.

12) An 18 oz box of cereal costs $3.51. Find the constant of direct variation.
13) A 10 lb bag of dog food costs $3.98 and a 25 lb bag of the same dog food costs $6.95. Which is the better buy?

14) In a formula \( r \) varies jointly as \( s \) and \( t \). If \( r = 540 \) when \( s = 15 \) and \( t = 24 \), find \( r \) when \( s = 21 \) and \( t = 30 \).

15) Find the perimeter of a parallelogram that has sides of 30 and 18 inches.

16) Find the perimeter of a rectangle whose length is 14 inches and whose height is 9 inches.

17) Find the perimeter of a square that measures 3 ft 8 in. on a side.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

18) What is the name of the given shape?

A) square  
B) rectangle 
C) parallelogram 
D) circle

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

19) How many feet of quarter-round molding are needed to finish around the baseboard after sheet-vinyl flooring is installed if a room is 14 ft by 16 ft and there are two 3-ft wide doorways?

20) The swimming pool measures 60 ft by 28 ft. How much fencing is needed, including material for a gate, if the fence is to be built 10 ft from each side of the pool?
21) Gary King is putting in a chain link fence around his backyard. It will extend 10 feet on either side of his house, down the side yard and across the back. How much fencing should he buy?

22) Find the perimeter of the given figure.

23) Find the measurement of length \( y \).

24) Find the perimeter of the given figure.
25) Find the measurement of length $y$. 

26) Find the area of a square whose sides measure 4 ft 3 in. 

27) Find the area of the given figure. Round to the nearest tenth. 

28) Find the area of the triangle as shown. Round answer to four significant digits. 

29) Find the area of the given figure.
30) Find the area of the given figure.

![Triangle Diagram]

31) Find the area of the given figure.

![Rectangle Diagram]

32) Find the radius of a circle whose circumference is 90 in. (round to nearest tenth).

33) Find the diameter of a circle whose circumference is 25 ft (round to the nearest hundredth).

34) Find the area of the shaded region:

![Shaded Region Diagram]

35) Find the circumference of a circle with a diameter of 17 mm (round to the nearest hundredth).

36) Find the radius of a circle with an area of 78.5 mm² (round to the nearest hundredth).
37) Find the area of the shaded region to the nearest tenth.

38) Find the area of the entire shape. Round to the nearest tenth.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

39) A belt to form a conveyor system connects two 15-cm.-diameter drums. The centers of the drums are 5 m apart. How long must a replacement belt be? Round to the nearest tenth.

A) 40.0 cm  
B) 52.1 cm  
C) 104.2 cm  
D) 57.1 cm

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

40) Find the circumference of the given circle.
41) Find the area of the gray ring formed by the cross-cut section. Round to the nearest tenth.

![Diagram of a gray ring with inner radius 2.9 cm and outer radius 6.4 cm.]

42) Find the volume of the cone.

![Diagram of a cone with height 7.4 in, slant height 7.1 in, and base diameter 4.2 in.]

43) Determine the volume of the given cylinder.

![Diagram of a cylinder with height 26 in and radius 18 in.]

44) Determine the volume of the given figure.

![Diagram of a hollow cylinder with height 28 ft and radius 70 ft.]
45) Determine the volume of the given figure. Round the answer to nearest tenth of an inch.

\[ \text{Volume} = \pi \times r^2 \times h \]

\[ \text{Volume} = \pi \times 3^2 \times 4 \]

\[ \text{Volume} = \pi \times 9 \times 4 \]

\[ \text{Volume} = 36\pi \]

\[ \approx 113.1 \text{ in}^3 \]

46) Determine the volume of the given sphere.

\[ \text{Volume} = \frac{4}{3} \pi r^3 \]

\[ \text{Volume} = \frac{4}{3} \pi (32^3) \]

\[ \text{Volume} = \frac{4}{3} \pi \times 32768 \]

\[ \text{Volume} = \frac{4}{3} \times 32768\pi \]

\[ \approx 42515.4 \text{ m}^3 \]

47) Find the volume of the given cone.

\[ \text{Volume} = \frac{1}{3} \pi r^2 h \]

\[ \text{Volume} = \frac{1}{3} \pi \times 13^2 \times 12 \]

\[ \text{Volume} = \frac{1}{3} \pi \times 169 \times 12 \]

\[ \text{Volume} = 676\pi \]

\[ \approx 2123.3 \text{ cm}^3 \]
48) Determine the lateral surface area of the given figure. The dimensions are in inches.

49) Determine the lateral area of the given figure. Round to the nearest whole number.

50) Find the total surface area of the sphere.

51) Determine the lateral surface area of the given cylinder.
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

52) Find the total surface area of the given cone.

A) 153.1 in\(^2\)   B) 62.7 in\(^2\)   C) 60.7 in\(^2\)   D) 269.7 in\(^2\)

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

53) Find the lateral surface area of the given cone.

54) Determine the lateral surface area of the given rectangular solid.
55) Determine the total surface area of the given figure. The dimensions are in inches.

56) Find the total surface area of the given cone.

57) Find the area of the given circle.
MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

58) Select the specific name for this figure.

A) scalene triangle  
B) equilateral triangle  
C) acute triangle  
D) right triangle

59) If the sides of a triangle measure 15 m, 18 m, and 22 m, what kind of triangle is it?

A) scalene triangle  
B) equilateral triangle  
C) isosceles triangle  
D) right triangle

60) Name the triangle whose sides measure 18 cm, 22 cm, and 18 cm.

A) equilateral  
B) right  
C) isosceles  
D) scalene

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

61) Identify the smallest angle in the given triangle

62) Find \( A \) if \( C = 8 \) and \( B = 5 \). Round the answer to the nearest thousandth.
63) Determine BC if AC = 4.2 ft and AB = 9.1 ft. Round to the nearest tenth. 

64) A triangular city block is 360 ft on one side and 375 ft on the second side. What is the length of the third side?

65) Determine AB if AC = 6 cm and BC = 15 cm.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

66) Find the length of the wire attached to a light pole 2.5 feet from the top of the light pole. The pole is 36 feet high. The wire is secured with a two-foot screw anchor 18 feet from the base of the pole.

A) 31.2 ft  
B) 40.2 ft  
C) 38.0 ft  
D) 28.3 ft
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

67) A triangular city block is 360 ft on one side and 375 ft on the second side. What is the perimeter of the block?
1) 10
2) 0.1
3) 15
4) 4.5
5) \( \frac{8}{14} \)
6) \(-5\frac{1}{4}\)
7) 8.57 h
8) $5.76
9) 979.6 pounds
10) 40 sinks
11) 2.2 gal
12) $0.195
13) 25 lb bag
14) 945
15) 96 in.
16) 46 in.
17) 176 in. or \(14 \frac{2}{3}\) ft
18) C
19) 54 ft
20) 256 ft
21) 200 ft
22) 40 in.
23) 3 cm
24) 38 cm
25) 5 ft 2 in.
26) 2601 in\(^2\) or 18.0625 ft\(^2\)
27) 138 ft\(^2\)
28) 255.3 ft\(^2\)
29) 72 in\(^2\)
30) 34.1 in\(^2\)
31) 66 cm\(^2\)
32) 14.3 in.
33) 7.96 ft
34) 50.93 ft\(^2\)
35) 53.41 mm
36) 5 mm
37) 15.1 ft\(^2\)
38) 1,735.8 ft\(^2\)
39) D
40) circumference: 25.13 cm
41) 102.3 cm\(^2\)
42) 32.8 in\(^3\)
43) 26,464.8 in\(^3\)
44) 43,103 ft\(^3\)
45) 28.3 in\(^3\)
46) 17,157.3 m\(^3\)
47) 314.2 cm\(^3\)
48) 630 in\(^2\)
49) 792 square units
50) 1,764.6 mm\(^2\)
51) 2,940.5 in\(^2\)
52) B
53) 48.8 in\(^2\)
54) 936 cm\(^2\)
55) 838 in\(^2\)
56) 282.7 cm\(^2\)
57) area: 50.27 cm\(^2\)
58) B
59) A
60) C
61) \(\angle B\)
62) 6.245
63) 8.1 ft
64) 105 ft
65) 16.16 cm
66) C
67) 840 ft