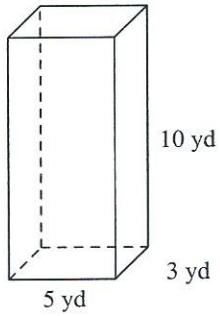# Geometry

Multiple Choice
Identify the choice that best completes the statement or answers the question.

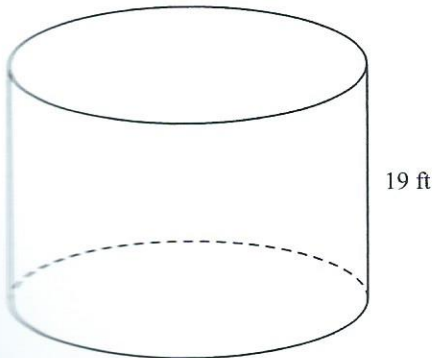*Find the lateral area of each solid. Round to the nearest tenth if necessary.*

____ 1.

a. 190 yd²
b. 160 yd²

c. 150 yd³
d. 16 yd

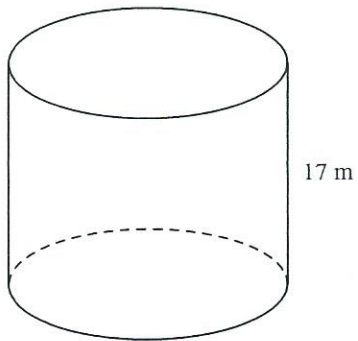*Find the lateral area of each solid. Round to the nearest tenth if necessary.*

____ 2. The base of the cylinder has a radius of 9.5 ft.

a. 1,701.2 ft²
b. 5,387 ft²

c. 1,134.1 ft²
d. 59.7 ft

_____ 3. The base of the cylinder has a diameter of 14 m.

17 m

a. 44 m   c. 747.7 m^2
b. $1{,}055.6 \text{ m}^2$ d. $2{,}616.9 \text{ m}^3$

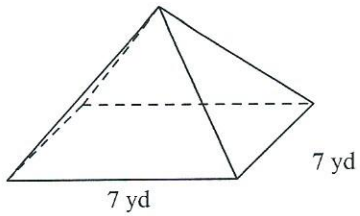*Find the lateral area of each solid. Round to the nearest tenth if necessary.*

_____ 4. The base of a triangular pyramid is shown below. The pyramid has a slant height of 6.2 in..

5.5 in.   5.5 in.

5.5 in.
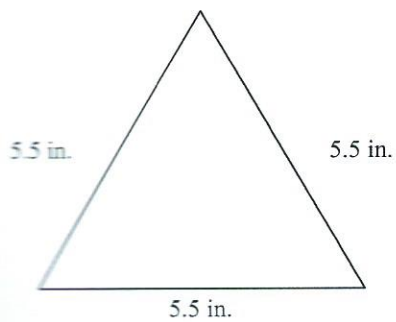
a. 68.2 in^2 c. 77.4 in^2
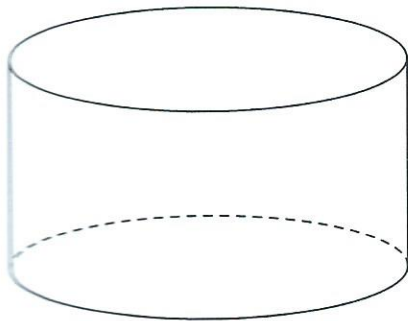b. 51.2 in^2 d. 40 in^3

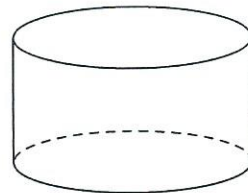_____ 5. The square pyramid has a slant height of 5.3 yd.

7 yd

7 yd

a. 28 yd
b. 65.3 yd³

c. 123.2 yd²
d. 74.2 yd²

Find the missing measure for each pair of similar solids. Round to the nearest tenth if necessary.

_____ 6. The diameter of the larger cylinder is 20 yd, and the diameter of the smaller cylinder is 12 yd.
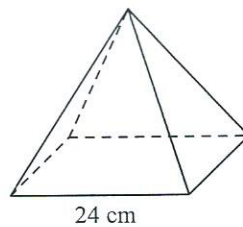

?

9.6 yd

a. 5.8 yd
b. $\frac{3}{5}$

c. 16 yd
d. $\frac{4}{3}$

_____ 7. The slant height of the larger pyramid is ? , and the slant height of the smaller pyramid is 19.2 cm.

40 cm   24 cm

a. 32 cm   c. $\frac{3}{5}$
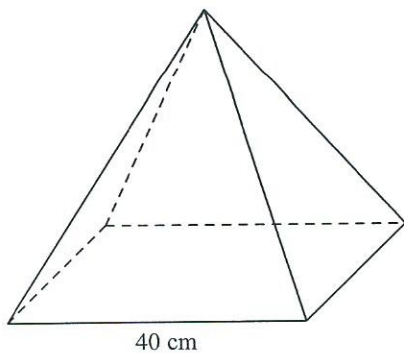
b. $\frac{24}{19}$ d. 11.5 cm

_____ 8. Randy made a large wall hanging in art class.

24 in.

24 in.

40 in.

What is the area of the wall hanging to the nearest square inch?

a. 880 in²   c. 678 in²

b. 768 in²   d. 524 in²

_____ 9. Below is a right triangular prism.

8 cm

12 cm

5 cm

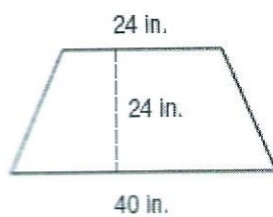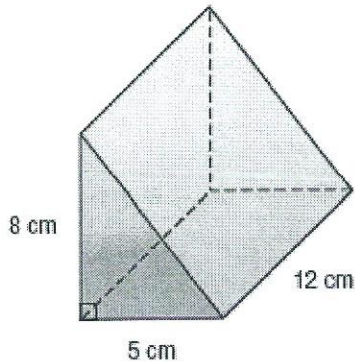What is the volume of the prism?

a. 180 cm³
b. 220 cm³

c. 240 cm³
d. Not Here

_____ 10. Which of the following is closest to the volume of the cone below?

10 cm

6 cm
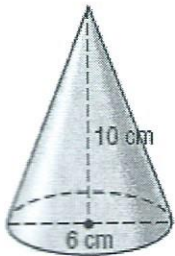
a. 31 cm³
b. 94 cm³

c. 283 cm³
d. 377 cm³

_____ 11. The Art to Go Shop ships posters in cylindrical mailing tubes.

36 in.

4 in.
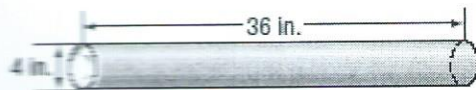
Which is closest to the surface area of the tube?

a. 452 square inches
b. 478 square inches

c. 553 square inches
d. 1810 square inches

_____ 12. A landscape architect designs a park in the shape of the trapezoid below.

Which procedure can be used to find the area of the park?
a. Add 10 and 18, and then multiply the result by 6.
b. Add 10 and 18, multiply by 6, and then divide the result by 2.
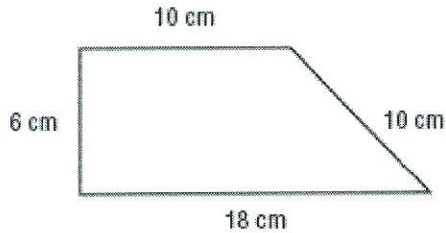c. Add 6 and 10, and then multiply the result by 18.
d. Add 6 and 10, multiply by 18, and then divide the result by 2.

_____ 13. Which of the following figures would represent the top view of a triangular prism?

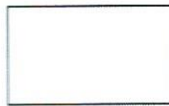a.

c.

b.

d.

_____ 14. Mr. Van Dyke made a circular stained-glass window for the entryway of his house.

What is the approximate area of the stained-glass window?
a. 520 in² c. 344 in²
b. 452 in² d. 240 in²

_____ 15. What is the volume of a cube with side lengths of 5 centimeters?
a. 25 cm³ c. 100 cm³
b. 80 cm³ d. 125 cm³

_____ 16. A fire extinguisher is 16 inches tall and has a radius of 3 inches.
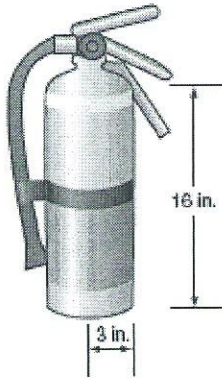
What is the approximate volume of the fire extinguisher?
a. 28 in³   c. 452 in³
b. 151 in³   d. 1809 in³

_____ 17. In Ms. Miller's math class, students made geometric riddles. Soren's riddle is the following:
The solid has 8 vertices, 6 faces, and 12 edges.
Which of the following figures matches Soren's riddle?
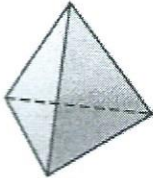
a.   c.
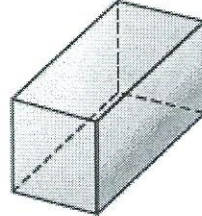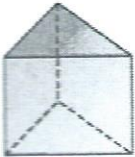
b.   d.

Name: _____

_____ 18. This net represents the surface area of a solid figure.
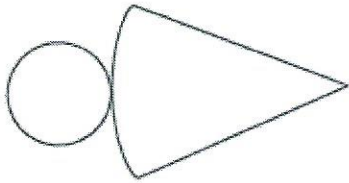
Which of the following is a drawing of the solid figure?

a.

c.

b.

d.

_____ 19. The Kimbell Art Museum in Fort Worth is made up of 16 rectangular rooms. Each room is 100 feet long by 20 feet wide. What is the total ground area covered by the 16 rooms of the building?
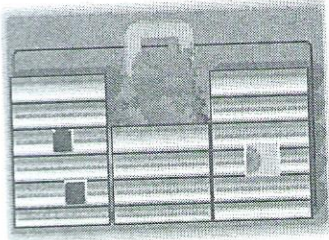
a. $32,000 \text{ ft}^2$
b. $20,000 \text{ ft}^2$

c. $12,000 \text{ ft}^2$
d. $8,000 \text{ ft}^2$

_____ 20. A circular helipad has a circumference of 63 feet. What is the circumference of the circular warning area, whose diameter is twice that of the helipad?
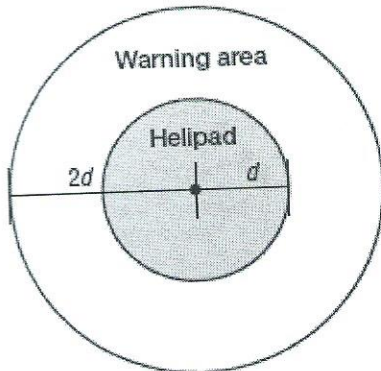
a. 110 ft
b. 126 ft

c. 252 ft
d. 504 ft

Short Answer

21. What is the surface area of the rectangular prism below?

3 cm

5 cm

4 cm
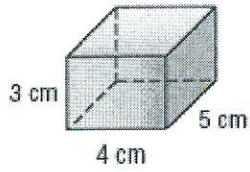
Record your answer and fill in the bubbles in the grid below. Be sure to use the correct place value.

Geometry

Answer Section

MULTIPLE CHOICE

1. ANS: B

The lateral area, L, of a prism is the perimeter, P, of the base times the height, h, of the prism or $L = Ph$.

	Feedback
A	This is total surface area; do not add the area of the bases to find lateral area.
B	Correct!
C	This is the volume of the solid. Reread the directions.
D	This is the perimeter of the base; multiply this by the height to find lateral area.

PTS: 1   DIF: Basic   REF: Lesson 7-7
OBJ: 7-7.1 Find the lateral areas of prisms.   STA: 8.8(A) | 8.8(C)
TOP: Find the lateral areas of prisms.   KEY: Area | Lateral area | Prisms

2. ANS: C

To find the lateral surface area of a cylinder, use the formula, $L = 2\pi rh$.
$L = 2\pi(9.5)(19)$
$L \approx 1,134.1$

	Feedback
A	This is the total surface area. Do not include the area of the bases.
B	This is the volume of the cylinder. Find the lateral surface area.
C	Correct!
D	This is the circumference of the base; multiply this by the height of the cylinder.

PTS: 1   DIF: Average   REF: Lesson 7-7
OBJ: 7-7.3 Find the lateral areas of cylinders.   STA: 8.8(A) | 8.8(C)
TOP: Find the lateral areas of cylinders.   KEY: Area | Lateral area | Cylinders

3. ANS: C

To find the lateral surface area of a cylinder, use the formula, $L = \pi dh$.
$L = \pi(14)(17)$
$L \approx 747.7$

	Feedback
A	This is the circumference of the base; multiply this by the height of the cylinder.
B	This is the total surface area. Do not include the area of the bases.
C	Correct!
D	This is the volume of the cylinder. Find the lateral surface area.

PTS: 1   DIF: Basic   REF: Lesson 7-7
OBJ: 7-7.3 Find the lateral areas of cylinders.   STA: 8.8(A) | 8.8(C)
TOP: Find the lateral areas of cylinders.   KEY: Area | Lateral area | Cylinders

4. ANS: B

To find the lateral surface area of a pyramid, use the formula, $L = \frac{1}{2} P\ell$, where P is the perimeter of the base and ℓ is the slant height of the pyramid.

$L = \frac{1}{2} (3 \times 5.5)(6.2)$

$L = \frac{1}{2} (16.5)(6.2)$

$L = 51.2$

	Feedback
A	The base of a triangular pyramid is a triangle; it only has 3 sides.
B	Correct!
C	This is total surface area. Do not include the area of the base to find lateral area.
D	This is the volume of the pyramid. Find the lateral surface area.

PTS: 1   DIF: Average   REF: Lesson 7-8
OBJ: 7-8.1 Find the lateral areas of pyramids.   STA: 8.8(A) | 8.8(C) | 8.10(B)
TOP: Find the lateral areas of pyramids.   KEY: Area | Lateral area | Pyramid

5. ANS: D

To find the lateral surface area of a pyramid, use the formula, $L = \frac{1}{2} P\ell$, where P is the perimeter of the base and ℓ is the slant height of the pyramid.

$L = \frac{1}{2} (4 \times 7)(5.3)$

$L = \frac{1}{2} (28)(5.3)$

$L = 74.2$

	Feedback
A	This is the perimeter of the base; multiply this by half of the slant height.
B	This is the volume of the pyramid. Find the lateral surface area.
C	This is total surface area. Do not include the area of the base to find lateral area.
D	Correct!

PTS: 1   DIF: Basic   REF: Lesson 7-8
OBJ: 7-8.1 Find the lateral areas of pyramids.   STA: 8.8(A) | 8.8(C) | 8.10(B)
TOP: Find the lateral areas of pyramids.   KEY: Area | Lateral area | Pyramid

6. ANS: C

Since the two solids are similar, the ratios of their corresponding linear measures are proportional. Set-up the proportion, $\frac{20}{?} = \frac{12}{9.6}$, and solve for the missing value.

	Feedback
A	Plug this value into a proportion. Does it work?
B	This is a ratio of two known values. Use this to find the missing value.
C	Correct!
D	This is a ratio of two known values. Use this to find the missing value.

PTS: 1   DIF: Basic   REF: Lesson 7-9
OBJ: 7-9.1 Find the dimensions of similar solids.   STA: 8.9(B) | 8.10(B) | 8.14(D)
TOP: Find the dimensions of similar solids.
KEY: Similar solids | Similarity | Dimensions | Solids

7. ANS: A

Since the two solids are similar, the ratios of their corresponding linear measures are proportional. Set-up the proportion, $\frac{40}{?} = \frac{24}{19.2}$, and solve for the missing value.

	Feedback
A	Correct!
B	This is a ratio of two known values. Use this to find the missing value.
C	This is a ratio of two known values. Use this to find the missing value.
D	Plug this value into a proportion. Does it work?

PTS: 1   DIF: Basic   REF: Lesson 7-9
OBJ: 7-9.1 Find the dimensions of similar solids.   STA: 8.9(B) | 8.10(B) | 8.14(D)
TOP: Find the dimensions of similar solids.
KEY: Similar solids | Similarity | Dimensions | Solids

8. ANS: B   PTS: 1   STA: 8.7(B)
9. ANS: C   PTS: 1   STA: 8.8(B)
10. ANS: B   PTS: 1   STA: 8.8(C)
11. ANS: B   PTS: 1   STA: 8.8(A)
12. ANS: B   PTS: 1   STA: 8.14(C)
13. ANS: A   PTS: 1   STA: 8.7(A)
14. ANS: B   PTS: 1   STA: 8.7(B)
15. ANS: D   PTS: 1   STA: 8.8(B)
16. ANS: C   PTS: 1   STA: 8.8(B)
17. ANS: C   PTS: 1   STA: 8.15(A)
18. ANS: D   PTS: 1   STA: 8.7(A)
19. ANS: A   PTS: 1   STA: 8.7(B)
20. ANS: B   PTS: 1   STA: 8.10(A)

SHORT ANSWER

21. ANS:

PTS: 1   STA: 8.8(A)