GEOMETRY SOL PRACTICE TEST
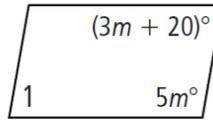## STRAND 3: Polygons, Circles, and 3D Figures

1. **If the quadrilateral is a parallelogram, what is the $m\angle 1$?**

   A) 20

   C) 80

   B) 60

   D) 100

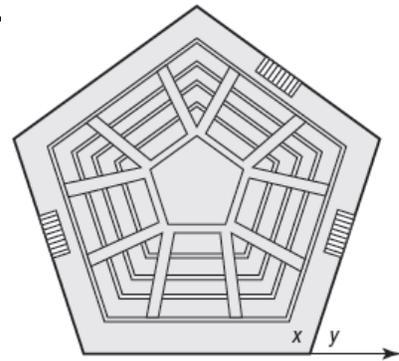 $(3m + 20)°$

   1          $5m°$

2. **Quadrilateral TUVW has its vertices at T(-2, 4), U(3, 3), V(2, -2), and W(-3, -1). Classify TUVW. Select all that apply.**

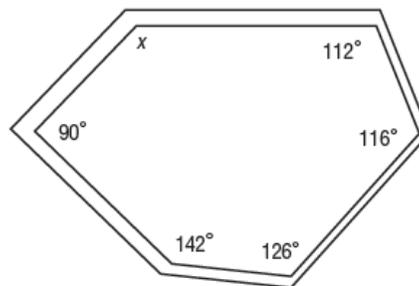 | Trapezoid | Isosceles Trapezoid | Rhombus |
   |-----------|---------------------|---------|
   | Rectangle | Parallelogram | Square |

3. **The Pentagon in Washington, D.C. is a regular pentagon as shown. What are the values of x and y in degrees?**

   A) x = 128; y = 51.4

   B) x = 120; y = 60

   **C)** x = 108; y = 72

   D) x = 72; y = 108

   x y

4. **LeeAnn cut a piece of stained glass that is shaped like the hexagon below. What is the value of x?**

   A) 114°

   B) 134°

   C) 314°

   D) 494°

   x   112°

   90°   116°

   142°   126°

5. **Rob wants to take a picture of a fountain. His camera is at the vertex of the angle formed by the tangents to the fountain. If Rob estimates that this angle is 30 degrees, what is the measure x of the arc of the fountain that will be in the photograph?**

   M   N

   x

   30°

   O

   A) 150°

   B) 140°
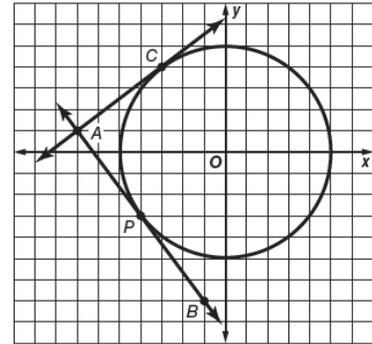
   C) 120°

   D) 100°
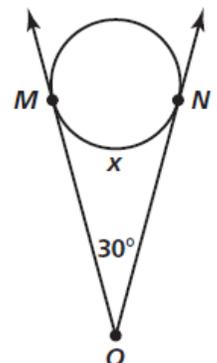
6. Circle O with radius 5 centimeters has angle and arc measures as shown.
   Which value is the closest to the area of the shaded sector of the circle O, in square centimeters?

   A) 27.5   B) 29.2
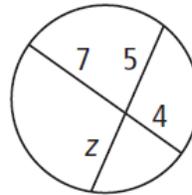
   C) 40.1   D) 49.3
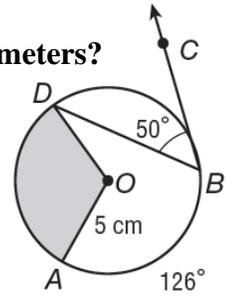
7. $\overleftrightarrow{AB}$ is tangent to circle O at point P (-4, -3), and $\overleftrightarrow{AC}$ is tangent to
   circle O at point C (-3, 4). Which statement is not true?

   A) slope of $\overline{PO}$ • slope $\overleftrightarrow{AB} = -1$

   B) OA = OC

   C) OB > OP
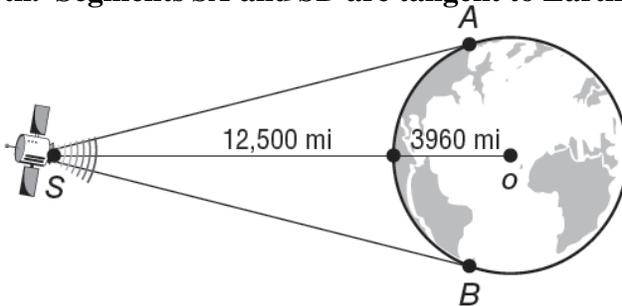
   D) AP = AC

8. In the figure at the right, what is the value of z?

   A) 2.9   B) 6
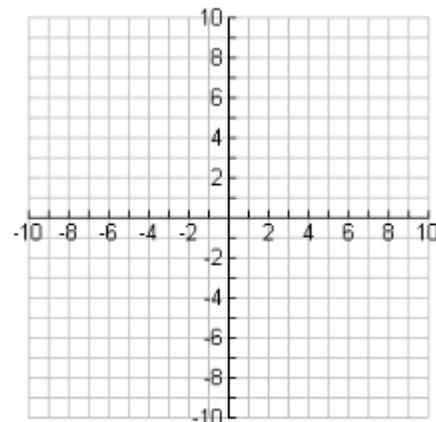
   C) 5.6   D) 8.5

9. A satellite orbiting Earth at a distance of 12,500 miles transmits signals to points A and B on the
   Earth. Segments SA and SB are tangent to Earth. What is the length of SA to the nearest mile?

   12,500 mi   3960 mi

   Length of SA = _____

10. Given the equation of a circle $(x-2)^2 +(y+4)^2 =9$,
    plot a point on the circumference of the circle.

11. The endpoints of a diameter of a circle are (-5, 1) and (3, 7). Which is an equation of the circle?

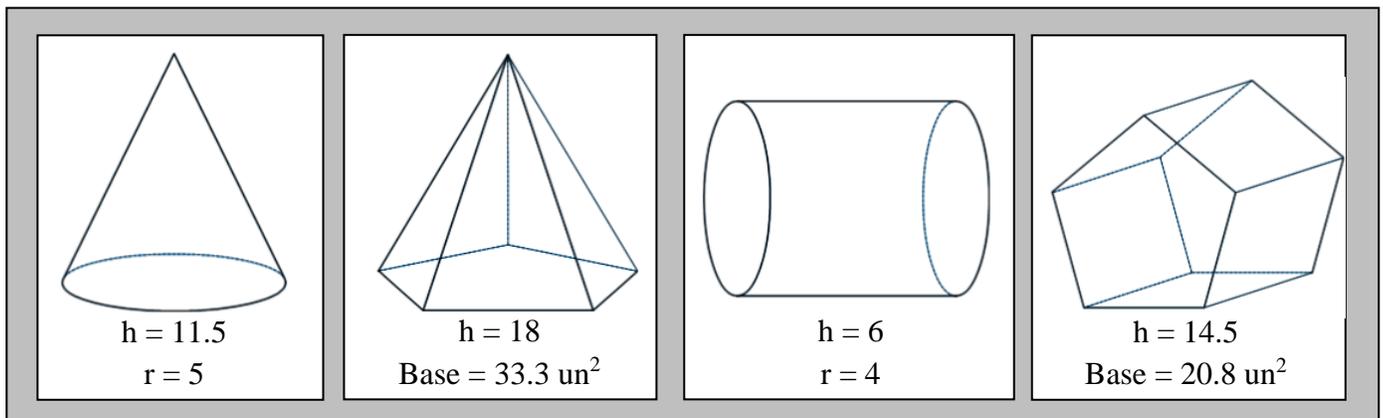**A)** $(x+1)^2 + (y-4)^2 = 25$

B) $(x+1)^2 + (y-4)^2 = 100$

C) $(x+2)^2 + (y-8)^2 = 25$

D) $(x+2)^2 + (y-8)^2 = 100$

12. Which of the following figures have the approximately the same surface areas? Select all that apply.

h = 11.5	h = 18	h = 6	h = 14.5
r = 5	Base = 33.3 un²	r = 4	Base = 20.8 un²

13. A right cone used for a tent is shown.
Which is the closest to the volume of the right cone, in cubic feet?

A) 301.6

B) 377.0

C) 904.8

D) 1131.0

10 ft

6 ft
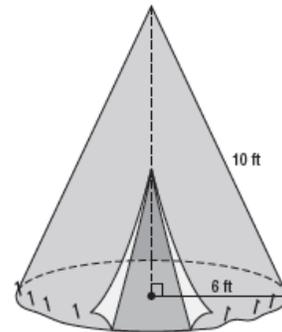
14. A super bounce ball contains about 905 in³ of air.
If the diameter is increased by 2 inches, what would the new volume be?

A) 804 in³

B) 615 in³

C) 1437 in³

D) 2145 in³

15. A chocolate manufacturer packages chocolate bars in cardboard prisms whose bases are equilateral triangles. Each base measures 3 cm on a side. If the container is 18 cm long, how many cubic centimeters of chocolate will it hold? Round your answer to the nearest cubic centimeter.

A) 486 cm²
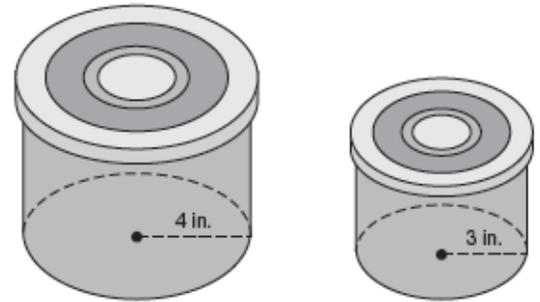
B) 162 cm²

C) 81 cm²

D) 70 cm²

16. Two cylindrical kitchen canisters are similar.
How many times more volume will the larger canister hold?

A) $\dfrac{4}{3}$ times more

B) $\dfrac{8}{3}$ times more

C) $\dfrac{16}{9}$ times more

D) $\dfrac{64}{27}$ times more

4 in.

3 in.

17. The Great Pyramid in Egypt originally measured 230.33 meters on a side of the square base and had a height of 146.59 meters. Raj wanted to build a similar pyramid so that the volume is one-thousandth that of the Great Pyramid. How can he find the new dimensions?

A) Multiply the dimensions by 1000

B) Divide the dimensions by 1000

C) Divide the dimensions by 100

D) Divide the dimensions by 10

146.59 m

230.33 m
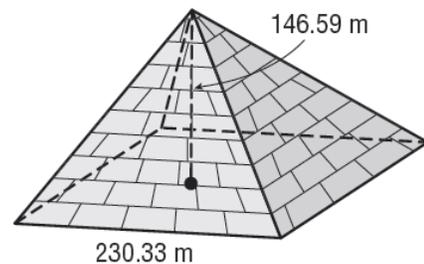
18. In a display at a science museum, two planets have volumes of 8 cubic inches and 27 cubic inches. What is the ratio of the diameter of the smaller planet to the diameter of the larger planet?

☐ : ☐

| 1 | 2 | 3 | 4 | 6 | 8 | 9 | 12 | 64 | 729 |