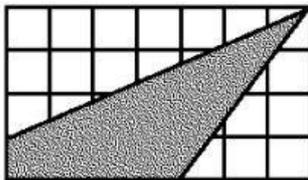


- a. 20 mi                      b. 25 mi                      c. 10 mi                      d. 35 mi

\_\_\_ 28. A triangle has sides of lengths 12, 14, and 19. Is it a right triangle? Explain.

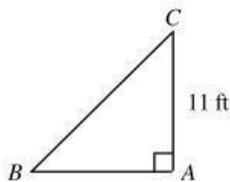
- a. yes;  $12^2 + 14^2 \neq 19^2$                       c. no;  $12^2 + 14^2 \neq 19^2$   
 b. no;  $12^2 + 14^2 = 19^2$                       d. yes;  $12^2 + 14^2 = 19^2$

\_\_\_ 29. The figure is drawn on centimeter grid paper. Find the perimeter of the shaded figure to the nearest tenth.



- a. 17.6 cm<sup>2</sup>                      b. 10.8 cm<sup>2</sup>                      c. 15.6 cm<sup>2</sup>                      d. 18.0 cm<sup>2</sup>

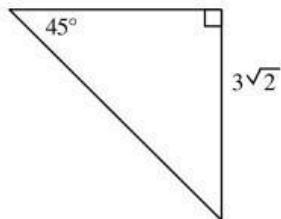
\_\_\_ 30. In triangle  $ABC$ ,  $\angle A$  is a right angle and  $m\angle B = 45^\circ$ . Find  $BC$ . If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

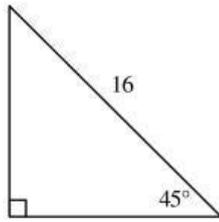
- a. 22 ft                      b.  $22\sqrt{2}$  ft                      c. 11 ft                      d.  $11\sqrt{2}$  ft

\_\_\_ 31. Find the length of the hypotenuse.



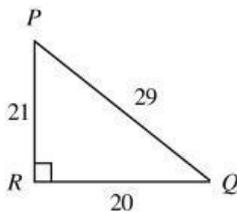
- a. 12                      b. 6                      c. 5                      d. 18

\_\_\_ 32. Find the length of the leg. If your answer is not an integer, leave it in simplest radical form.



Not drawn to scale

- a. 128                      b.  $8\sqrt{2}$                       c. 16                      d.  $2\sqrt{2}$
- \_\_\_ 33. The area of a square garden is  $50 \text{ m}^2$ . How long is the diagonal?  
 a. 25 m                      b. 100 m                      c.  $5\sqrt{6}$  m                      d. 10 m
- \_\_\_ 34. The length of the hypotenuse of a  $30^\circ$ - $60^\circ$ - $90^\circ$  triangle is 4. Find the perimeter.  
 a.  $4 + 12\sqrt{3}$                       c.  $2 + 6\sqrt{3}$   
 b.  $6 + 2\sqrt{3}$                       d.  $12 + 4\sqrt{3}$
- \_\_\_ 35. A piece of art is in the shape of an equilateral triangle with sides of 7 in. Find the area of the piece of art. Round your answer to the nearest tenth.  
 a. none of these                      b.  $42.4 \text{ in.}^2$                       c.  $17.3 \text{ in.}^2$                       d.  $21.2 \text{ in.}^2$
- \_\_\_ 36. Write the tangent ratios for  $\angle P$  and  $\angle Q$ .

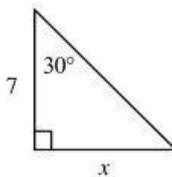


Not drawn to scale

- a.  $\tan P = \frac{29}{21}$ ;  $\tan Q = \frac{21}{29}$                       c.  $\tan P = \frac{21}{20}$ ;  $\tan Q = \frac{20}{21}$   
 b.  $\tan P = \frac{20}{21}$ ;  $\tan Q = \frac{21}{20}$                       d.  $\tan P = \frac{29}{20}$ ;  $\tan Q = \frac{20}{29}$

**Find the value of  $x$ . Round your answer to the nearest tenth.**

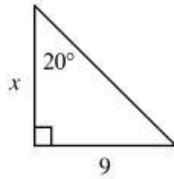
\_\_\_ 37.



Not drawn to scale

- a. 3.5                      b. 12.1                      c. 6.1                      d. 4

\_\_\_ 38.

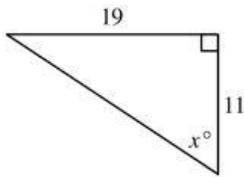


Not drawn to scale

- a. 3.3                      b. 3.1                      c. 24.7                      d. 8.5

**Find the value of  $x$  to the nearest degree.**

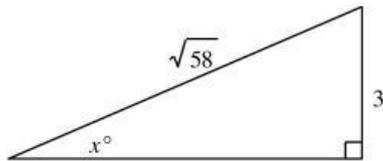
\_\_\_ 39.



Not drawn to scale

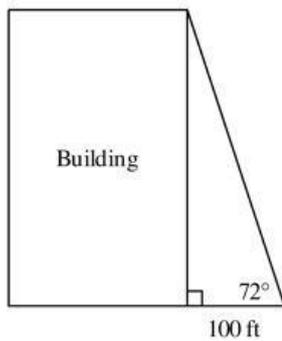
- a. 30                      b. 60                      c. 70                      d. 85

\_\_\_ 40.



- a. 67                      b. 22                      c. 83                      d. 53

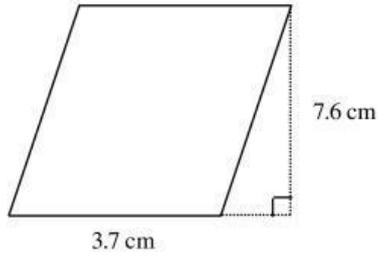
\_\_\_ 41. The students in Mr. Collin's class used a surveyor's measuring device to find the angle from their location to the top of a building. They also measured their distance from the bottom of the building. The diagram shows the angle measure and the distance. To the nearest foot, find the height of the building.



- a. 2400 ft                      b. 72 ft                      c. 308 ft                      d. 33 ft

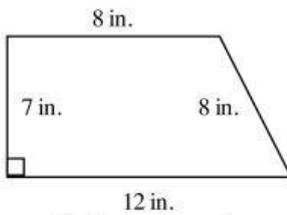
**Find the area. The figure is not drawn to scale.**

\_\_\_ 42.



- a.  $28.12 \text{ cm}^2$       b.  $3.9 \text{ cm}^2$       c.  $11.3 \text{ cm}^2$       d.  $56.24 \text{ cm}^2$

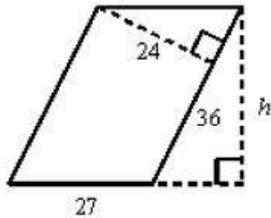
\_\_\_ 43.



Not drawn to scale

- a.  $77.2 \text{ in.}^2$       b.  $80 \text{ in.}^2$       c.  $75 \text{ in.}^2$       d.  $70 \text{ in.}^2$

\_\_\_ 44. Find the value of  $h$  in the parallelogram.

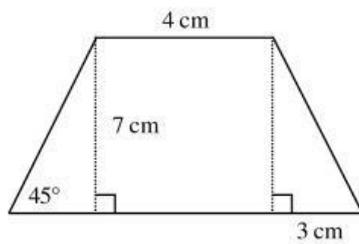


Not drawn to scale

- a. 32      b. 28      c. 40.5      d. 35

**Find the area of the trapezoid. Leave your answer in simplest radical form.**

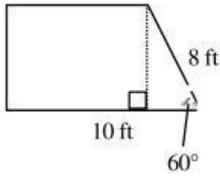
\_\_\_ 45.



Not drawn to scale

- a.  $63 \text{ cm}^2$       b.  $70 \text{ cm}^2$       c.  $24.5 \text{ cm}^2$       d.  $9 \text{ cm}^2$

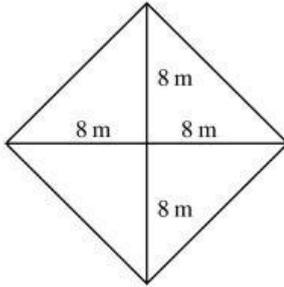
\_\_\_ 46.



Not drawn to scale

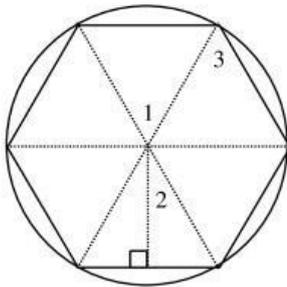
- a.  $40\sqrt{3}$  ft<sup>2</sup>      b.  $16\sqrt{3}$  ft<sup>2</sup>      c.  $24\sqrt{3}$  ft<sup>2</sup>      d.  $32\sqrt{3}$  ft<sup>2</sup>

\_\_\_ 47. Find the area of the rhombus.



- a. 12 m<sup>2</sup>      b. 4096 m<sup>2</sup>      c. 128 m<sup>2</sup>      d. 32 m<sup>2</sup>

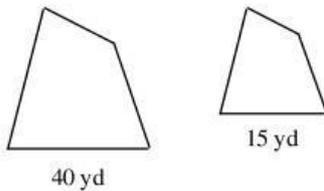
\_\_\_ 48. Given the regular hexagon, find the measure of each numbered angle.



- a.  $m\angle 1 = 30, m\angle 2 = 60, m\angle 3 = 30$       c.  $m\angle 1 = 60, m\angle 2 = 30, m\angle 3 = 60$   
 b.  $m\angle 1 = m\angle 2 = m\angle 3 = 60$       d.  $m\angle 1 = 60, m\angle 2 = 30, m\angle 3 = 30$

**The figures are similar. Give the ratio of the perimeters and the ratio of the areas of the first figure to the second. The figures are not drawn to scale.**

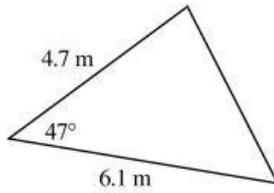
\_\_\_ 49.



- a.  $\frac{8}{3}$  and  $\frac{10}{5}$       b.  $\frac{9}{4}$  and  $\frac{64}{9}$       c.  $\frac{9}{4}$  and  $\frac{10}{5}$       d.  $\frac{8}{3}$  and  $\frac{64}{9}$

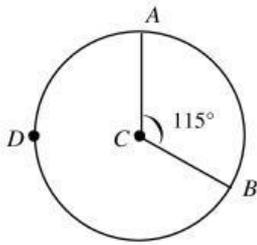
Find the area of the triangle. Give the answer to the nearest tenth. The drawing may not be to scale.

\_\_\_ 50.



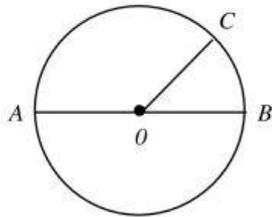
- a.  $10.5 \text{ m}^2$       b.  $9.8 \text{ m}^2$       c.  $19.6 \text{ m}^2$       d.  $21.0 \text{ m}^2$

\_\_\_ 51. Name the minor arc and find its measure.



- a. arc  $ADB$ ;  $30^\circ$       b. arc  $AB$ ;  $115^\circ$       c. arc  $ADB$ ;  $245^\circ$       d. arc  $AB$ ;  $245^\circ$

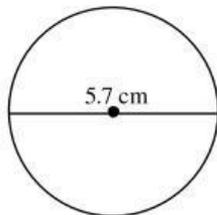
\_\_\_ 52. Identify a semicircle that contains  $C$ .



- a. semicircle  $ABC$       c. semicircle  $CB$   
b. semicircle  $AC$       d. semicircle  $ACB$

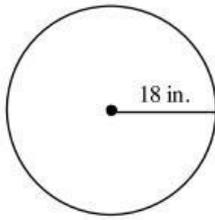
Find the circumference. Leave your answer in terms of  $\pi$ .

\_\_\_ 53.



- a.  $11.4\pi \text{ cm}$       b.  $8.55\pi \text{ cm}$       c.  $2.85\pi \text{ cm}$       d.  $5.7\pi \text{ cm}$

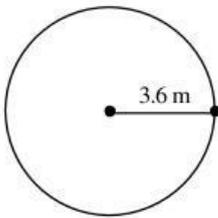
\_\_\_ 54.



- a.  $54\pi$  in.      b.  $36\pi$  in.      c.  $18\pi$  in.      d.  $324\pi$  in.

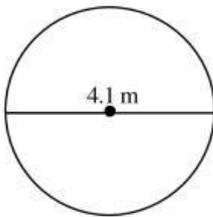
**Find the area of the circle. Leave your answer in terms of  $\pi$ .**

\_\_\_ 55.



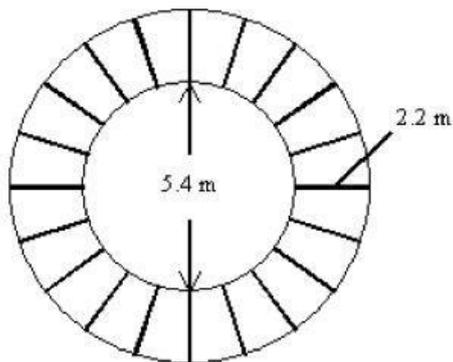
- a.  $25.92\pi$  m<sup>2</sup>      b.  $1.8\pi$  m<sup>2</sup>      c.  $12.96\pi$  m<sup>2</sup>      d.  $46.66\pi$  m<sup>2</sup>

\_\_\_ 56.



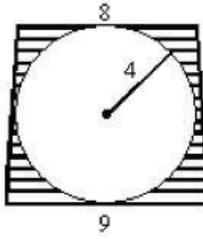
- a.  $4.2025\pi$  m<sup>2</sup>      b.  $8.405\pi$  m<sup>2</sup>      c.  $16.81\pi$  m<sup>2</sup>      d.  $11.2\pi$  m<sup>2</sup>

\_\_\_ 57. The figure represents the overhead view of a deck surrounding a hot tub. What is the area of the deck? Round to the nearest tenth.



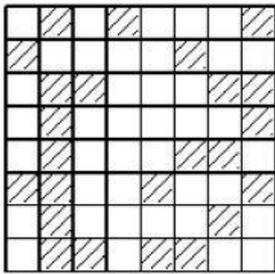
- a.  $75.4$  m<sup>2</sup>      b.  $89.8$  m<sup>2</sup>      c.  $278.7$  m<sup>2</sup>      d.  $22.9$  m<sup>2</sup>

\_\_\_ 58. Find the area of the shaded portion of the figure. Dimensions are in feet. Leave your answer in terms of  $\pi$ .



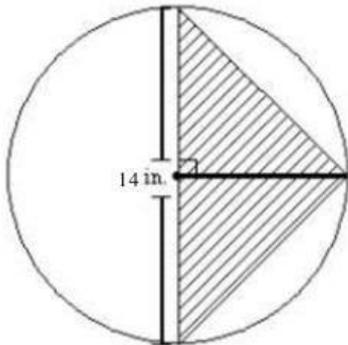
- a.  $(68 - 8\pi) \text{ ft}^2$     b.  $(72 - 16\pi) \text{ ft}^2$     c.  $(68 - 16\pi) \text{ ft}^2$     d. none of these

\_\_\_ 59. What is the probability that a point chosen at random on the grid will lie in the unshaded region?



- a.  $\frac{5}{8}$     b.  $\frac{2}{5}$     c.  $\frac{3}{8}$     d.  $\frac{3}{5}$

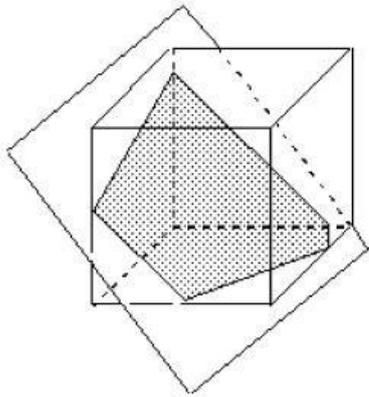
\_\_\_ 60. Find the probability that a point chosen at random will lie in the shaded area.



- a. 0.32    b. 0.62    c. 0.94    d. 0.02

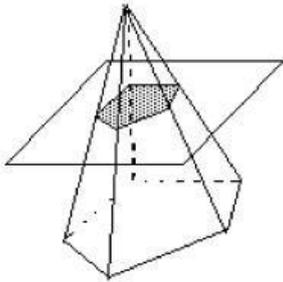
**Describe the cross section.**

\_\_\_ 61.



- a. pentagon      b. trapezoid      c. hexagon      d. cube

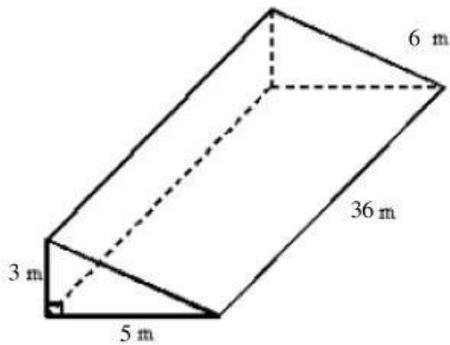
\_\_\_ 62. Pierre built the model shown in the diagram below for a social studies project. He wants to be able to show the inside of his model, so he sliced the figure as shown. Describe the cross section he created.



- a. hexagon      b. pentagon      c. pyramid      d. rectangle

**Use formulas to find the lateral area and surface area of the given prism. Show your answer to the nearest whole number.**

\_\_\_ 63.

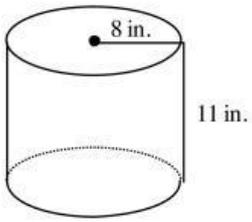


Not drawn to scale

- a.  $468 \text{ m}^2$  ;  $519 \text{ m}^2$       c.  $504 \text{ m}^2$  ;  $512 \text{ m}^2$   
b.  $468 \text{ m}^2$  ;  $534 \text{ m}^2$       d.  $504 \text{ m}^2$  ;  $519 \text{ m}^2$

**Find the surface area of the cylinder in terms of  $\pi$ .**

\_\_\_ 64.

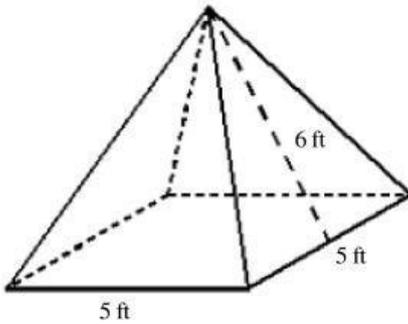


Not drawn to scale

- a.  $688 \text{ in.}^2$       b.  $304\pi \text{ in.}^2$       c.  $176\pi \text{ in.}^2$       d.  $208\pi \text{ in.}^2$

**Find the surface area of the pyramid shown to the nearest whole number.**

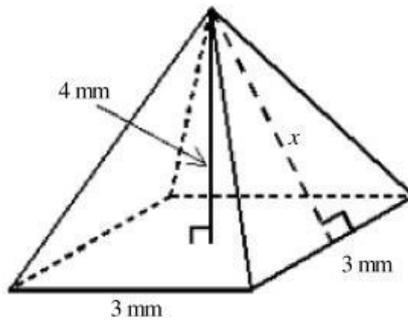
\_\_\_ 65.



Not drawn to scale

- a.  $85 \text{ ft}^2$       b.  $145 \text{ ft}^2$       c.  $60 \text{ ft}^2$       d.  $25 \text{ ft}^2$

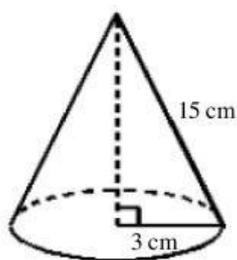
\_\_\_ 66. Find the slant height  $x$  of the pyramid shown to the nearest tenth.



Not drawn to scale

- a. 2.4 mm      b. 5 mm      c. 2.6 mm      d. 4.3 mm

\_\_\_ 67. Find the surface area of the cone in terms of  $\pi$ .

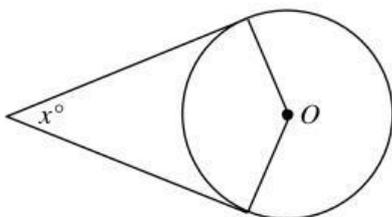


Not drawn to scale

- a.  $54\pi \text{ cm}^2$       b.  $99\pi \text{ cm}^2$       c.  $51\pi \text{ cm}^2$       d.  $49.5 \text{ cm}^2$

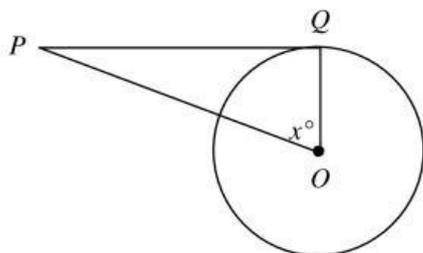
Assume that lines that appear to be tangent are tangent.  $O$  is the center of the circle. Find the value of  $x$ . (Figures are not drawn to scale.)

68.  $m\angle O = 111$



- a. 291      b. 69      c. 55.5      d. 222

69.  $m\angle P = 12$



- a. 78      b. 39      c. 102      d. 24

70.  $\overline{BC}$  is tangent to circle  $A$  at  $B$  and to circle  $D$  at  $C$  (not drawn to scale).  $AB = 7$ ,  $BC = 18$ , and  $DC = 5$ . Find  $AD$  to the nearest tenth.