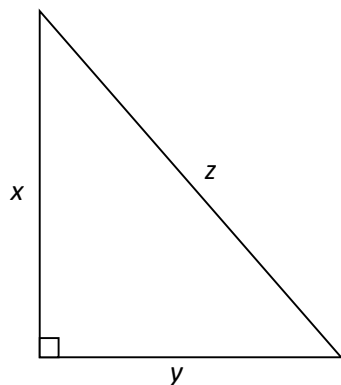


Geometry
Unit 4 Assessment

Name: _____

Date: _____

Part I: Multiple Choice. Solve each of the problems that follow. Show all work. Then, choose the best answer to each question. Print the letter of that answer in the space provided.

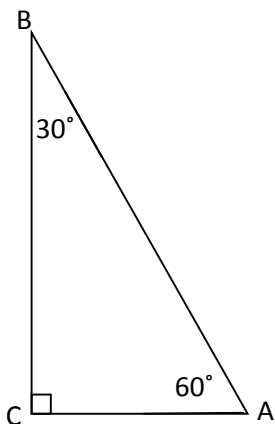


1) If $x = 12$ and $y = 5$, then $z =$ _____

- A. $3\sqrt{11}$
- B. 119
- C. 13
- D. 7

2) If $z = 7$ and $x = 2$, then $y =$ _____

- A. $3\sqrt{5}$
 - B. $\sqrt{53}$
 - C. 45
 - D. 53
-

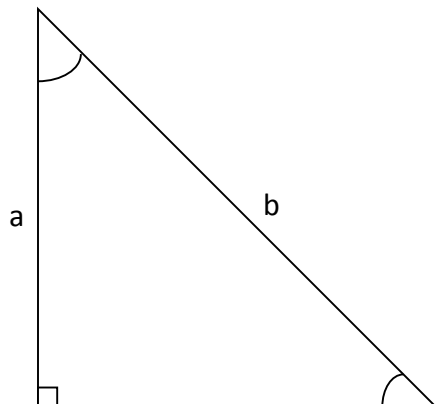


3) If $AC = 8$ then $AB =$ _____

- A. $8\sqrt{2}$
- B. $8\sqrt{3}$
- C. 16
- D. $16\sqrt{3}$

4) If $BC = 12$, then $AB =$ _____

- A. 6
 - B. 24
 - C. $4\sqrt{3}$
 - D. $8\sqrt{3}$
-

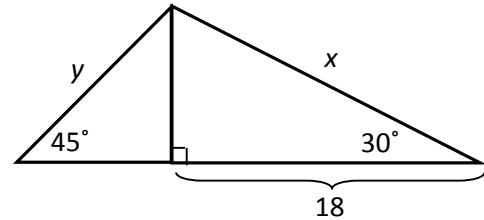


5) If $a = 6$, then $b =$ _____

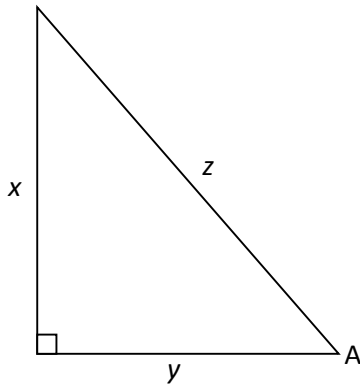
- A. 12
- B. $6\sqrt{3}$
- C. 6
- D. $6\sqrt{2}$

6) Solve for x and y in the diagram shown.

- A. $x = 9\sqrt{3}$, $y = 9\sqrt{2}$
- B. $x = 12\sqrt{3}$, $y = 6\sqrt{6}$
- C. $x = 18$, $y = 6\sqrt{6}$
- D. $x = 36$, $y = 18\sqrt{2}$



7) If $\angle A = 54^\circ$, and $y = 11$ ft, then $z =$ _____.
(Round your solution to the nearest whole number.)



- A. 14 ft.
- B. 9 ft.
- C. 6ft.
- D. 19 ft.

8) If $x = 11$ and $y = 17$, then find $m\angle A$.
(Round your solution to the nearest whole number.)

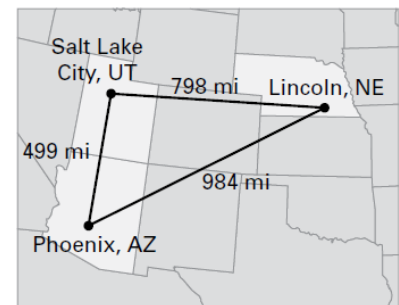
- A. 33°
- B. 40°
- C. 50°
- D. 57°

9) If $\angle A = 72^\circ$ and $z = 37$, then $x =$ _____.
(Round your solution to the nearest whole number.)

- A. 11
- B. 35
- C. 39
- D. 114

10) On a map of the United States, you put a pushpin on three state capitals that you want to visit: Phoenix, Arizona; Salt Lake City, Utah; and Lincoln, Nebraska. Do the pushpins form a right triangle? If not, what kind of triangle do they form?

- A. Yes, the pushpins form a right triangle.
- B. No, the pushpins form an acute triangle.
- C. No, the pushpins form an obtuse triangle.
- D. The type of triangle formed cannot be determined based on the information provided.



11) A kite is flying at an angle of elevation of 40° . If the length of kite string is 80 m, find the height of the kite rounded to the nearest whole number. (Disregard any slack in the string.)

- A. 61 m
- B. 51 m
- C. 67 m
- D. 124 m

12) A man on a 135 foot tall vertical cliff looks down at an angle of 18 degrees (angle of depression) and sees his friend. How far is the man's friend from the base of the cliff? (Round your answer to the nearest whole number.)

- A. 44 ft
- B. 142 ft
- C. 415 ft
- D. 437 ft

13) If the area of an equilateral triangle is $9\sqrt{3}$ square units, then the length of a side is ____.

- A. 9 units
- B. 6 units
- C. 3 units
- D. 36 units

14) Find the area of an equilateral triangle with a side of 8 inches.

- A. $2\sqrt{3} \text{ in}^2$
- B. $8\sqrt{3} \text{ in}^2$
- C. $16\sqrt{3} \text{ in}^2$
- D. 60 in^2

15) Find the area of a rectangle with a side of 12 cm and a diagonal that is 15cm long.

- A. 9 cm^2
- B. 54 cm^2
- C. 108 cm^2
- D. 180 cm^2

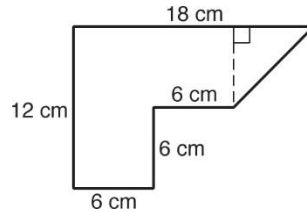
16) Find the area of an isosceles right triangle with a hypotenuse that is 30 cm long.

- A. 112.5 cm^2
- B. 150 cm^2
- C. 225 cm^2
- D. 450 cm^2

17) A parallelogram has sides of lengths 8 and 12 meters. One angle of the parallelogram has a measure of 60° . Find the area of the parallelogram.

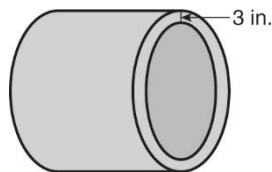
- A. $48 m^2$
- B. $48\sqrt{3} m^2$
- C. $96 m^2$
- D. $96\sqrt{3} m^2$

18) What is the area of the figure shown below?



- A. 126 cm^2
- B. 162 cm^2
- C. 180 cm^2
- D. 216 cm^2

19) What is the radius of the inside of the sewer pipe if the circumference of the outside of the pipe is 12.56 feet?



- A. 1 ft, 6 in.
- B. 1.75 ft.
- C. 2 ft.
- D. 4 ft.

20) A right cylinder has a volume of $240\pi \text{ m}^3$ and height 15 m. Find the radius of the cylinder.

- A. 4 m
- B. 8 m
- C. 15 m
- D. 16 m

21) Find the surface area of a sphere with a radius of 6 cm.

- A. $24\pi \text{ cm}^2$
- B. $36\pi \text{ cm}^2$
- C. $144\pi \text{ cm}^2$
- D. $288\pi \text{ cm}^2$

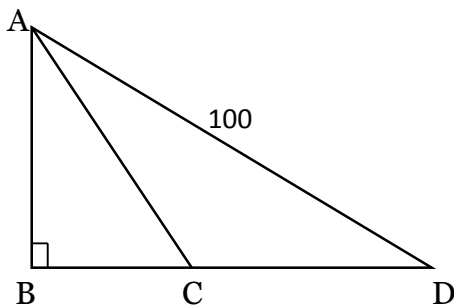
22) Find the length of the hypotenuse of a 30-60-90 triangle if the longer leg measures $7\sqrt{3}$ cm.

23) Find the length of the side of a square having a diagonal of 16 in.

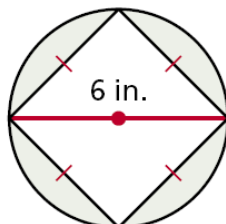
24) The Statue of Liberty is approximately 305 feet tall. If the angle of elevation from a ship to the top of the Statue is 24 degrees, how far is the ship from the Statue's base?
(Round your answer to the nearest whole number.)



25) If $AD = 100$, $\angle ADB = 52^\circ$, and $\angle ACB = 65^\circ$, find BC .

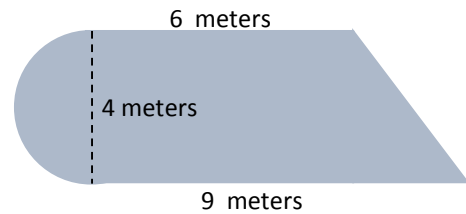


26) A square is inscribed in a circle as shown below.

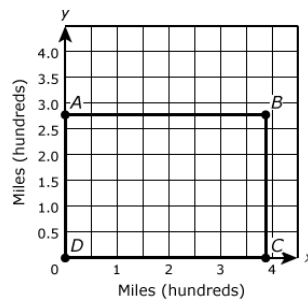


Find the shaded area. Round your solution to the nearest tenth.

- 27) The Quinpool family needs a winter cover for their swimming pool, which has the shape shown. How much will the cover cost if the company that makes it charges \$5.00 per square meter, regardless of the shape of the pool?



- 28) The figure below shows rectangle $ABCD$ in the coordinate plane with point A at $(0, 2.76)$, B at $(3.87, 2.76)$, C at $(3.87, 0)$, and D at the origin. Rectangle $ABCD$ can be used to approximate the size of the state of Colorado with x and y scales representing hundreds of miles.



- A. Based on the given information, how many miles is the perimeter of Colorado?
- B. *Multiple Choice:* At the end of 2010, the population of Colorado was 5,029,196 people. Based on the information given, what was the population density at the end of 2010?
- A. 25 people per square mile
 - B. 47 people per square mile
 - C. 2,269 people per square mile
 - D. 7,586 people per square mile

29) A large cylindrical cooler is 2.5 feet high and has a diameter of 1.5 feet. It is filled with water for athletes to use during their soccer game. Estimate the volume of the water in the cooler in gallons. (*Hint*: 1 gallon $\approx$ 231 in³)

30) A can of popcorn is to be packed in a box for shipping as shown below. The can is 18 inches tall and has a radius of 7 inches. The box is 19 inches tall and has a square base with sides of length 15 inches. All empty space around the can is to be filled with packing material. How many cubic inches of packing material will be needed?

