Name: _____ Class: _____ Date: _____ ID: A

P12 - Review Package 7

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

____ 1. In order to use the Pythagorean theorem, what must be true about a given triangle?

a. The triangle must be a right triangle, with one angle being 90°.
b. The sum of the interior angles of the triangle must add to 180°.
c. The triangle must be an acute triangle, with one angle being 45°.
d. The triangle must be an obtuse triangle, with one angle being 135°.

____ 2. A carpet has side lengths of 3.2 m and 4.6 m. What is the distance between opposite corners of the carpet?

a. 3.3 m
b. 2.8 m
c. 5.6 m
d. 7.9 m

____ 3. Each side of a square is 10 cm long. What is the length of the diagonal of the square?

a. 14.14 cm
b. 18.54 cm
c. 17.14 cm
d. 20.14 cm

____ 4. A rectangle has a length of 12 cm and an area of 120 cm^2. What is the length of the diagonal of the rectangle?

a. 17.62 cm
b. 15.62 cm
c. 120.60 cm
d. 119.40 cm

____ 5. What is an angle of depression?

a. The angle between the horizon and the line of sight when looking down.
b. The angle between the horizon and the line of sight when looking up.
c. The angle between the hypotenuse and the vertical leg of a triangle.
d. The angle between the vertical and horizontal legs of a triangle.

____ 6. A right triangle has a hypotenuse of 16 cm. If one of the angles is 27°, what is the length of the opposite side?

a. 8.15 cm
b. 8.47 cm
c. 7.26 cm
d. 14.26 cm

____ 7. A right triangle has an angle of 45° and the adjacent side is 33 cm. What is the hypotenuse?

a. 46.67 cm
b. 46.67 cm
c. 57.97 cm
d. 33.00 cm

____ 8. A right triangle has a leg of 28.8 cm and the adjacent angle is 65.4°. What is the length of the hypotenuse?

a. 42.97 cm
b. 13.19 cm
c. 69.18 cm
d. 31.67 cm

____ 9. The tangent ratio relates to which two sides of a right triangle?

a. The side adjacent to a given angle and the hypotenuse.
b. The side adjacent to a given angle and the vertical side.
c. The side opposite a given angle and the adjacent side.
d. The side opposite a given angle and the hypotenuse.

____ 10. What is the tangent of 40°?

a. 0.766
b. 0.839
c. 0.643
d. 0.677

____ 11. What is the tangent of 24°?

a. 0.441
b. 0.407
c. 0.914
d. 0.445

____ 12. A right triangle has an angle of 15°. If the opposite side is 67 cm long, what is the length of the adjacent side?

a. 250.0 cm
b. 258.9 cm
c. 253.7 cm
d. 254.9 cm

____ 13. A right triangle has an angle of 76°. If the adjacent side is 19.0 cm long, what is the length of the opposite side?

a. 19.0 cm
b. 74.5 cm
c. 76.2 cm
d. 78.5 cm

____ 14. What is an inverse trigonometric function?

a. A function that uses a ratio of side lengths to solve for an angle.
b. A function that uses an angle to solve for the ratio of side lengths.
c. A function that inverts the complementary angle of a triangle.
d. A function that inverts the ratio of side lengths of a triangle.

____ 15. What does an inverse trigonometric function solve for?

a. Length of hypotenuse
b. Length of the adjacent side
c. Length of the opposite side
d. Angle

____ 16. What is $\sin^{-1}(0.21)$?

a. 12.12°
b. 11.86°
c. 43.32°
d. 77.88°

____ 17. What is $\sin^{-1}(0.71)$?

a. 76.43°
b. 45.23°
c. 44.77°
d. 35.37°

____ 18. What is $\cos^{-1}(0.22)$?

a. 12.71°
b. 43.91°
c. 77.29°
d. 12.41°

____ 19. The hypotenuse of a right triangle is 23.96 cm and one leg is 11.09 cm long. What is the angle opposite to the 11.09 cm side?

a. 24.84°
b. 27.57°
c. 62.43°
d. 39.87°

____ 20. Under what conditions will the opposite side to ∠A always be longer than the adjacent side?

a. $\angle A < 45°$
b. $\tan A > 1$
c. $\angle A > 0°$
d. $\cos A < 1$

Short Answer

1. Create a Pythagorean triple involving the numbers 3 and 4.

2. A right triangle with a hypotenuse of 25 m must have legs that are at least 3 m in length. What is the maximum length that either of the legs can be?

3. A right triangle has a hypotenuse of 29 m. If one of the angles is 41°, what is the length of the adjacent side?

4. A staircase has stairs that are each 22 cm deep. The angle of elevation of the staircase is 35.4°. What is the height of one stair?

5. A doorstop has a height of 2 in. If the doorstop makes an angle of 20° with the ground, what is the length of its base?

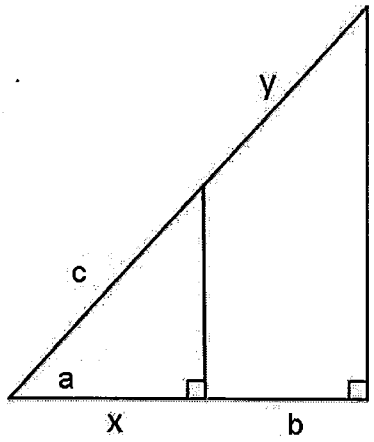
Problem

1. A right triangle has a leg measuring $6x^3$ and a hypotenuse measuring $10x^3$. What is the length of the other leg?

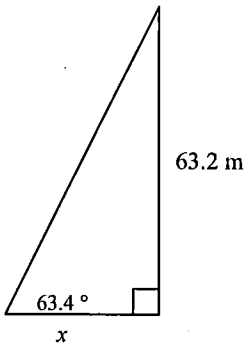
2. A 32.98-metre long guy wire is attached to a point 32 m up the side of a tower. How far from the base of the tower is the guy wire attached?

3. The diagram below has the following dimensions:
   $a = 54°$
   $b = 38$ cm
   $c = 86$ cm

   Find the lengths of x and y.



4. Find x to one decimal place.



5. A right triangle has a hypotenuse of 5 m. If sin A equals 0.7, what is the length of the side adjacent to ∠A?