

Geometry Test - Unit 7
Right Triangles and Trigonometry

☺ Name: _____ ☺

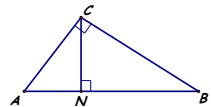
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Vocabulary: Define each word or concept and give an example.

1. Pythagorean Theorem
2. Angle of elevation
3. Solve a right triangle

Short Answer:

4. Explain how a right triangle could not have lengths of sides 5, 7, 12.
5. Describe how to classify a triangle as acute, obtuse, or right with side lengths of 6, 8, 9.
6. Explain how to use the geometric mean to find the altitude when you have an altitude drawn to the hypotenuse of a right triangle.



Review:

7. Write the definition of similar triangles.
8. Given, $\triangle ANC \sim \triangle DQF$ name the six corresponding parts and their relationships.

$\angle A \cong \angle D$ _____ _____

_____ _____ _____

9. Solve the following proportion: $\frac{25}{x} = \frac{x}{4}$

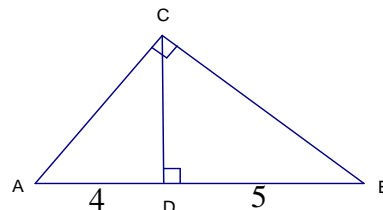
10. The measures of two consecutive angles of a parallelogram are in the ratio of 1 : 2.
Find the measure of each of the two consecutive angles.

Problems:

****Be sure to show all work used to obtain your answer. Circle answers where appropriate****

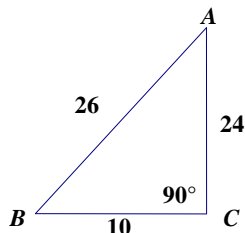
11. Decide whether the numbers 30, 40, and 60 can represent the side lengths of a triangle.
If they can, classify the triangle as *right*, *acute*, or *obtuse*.

12. Find the lengths of \overline{CD} and \overline{AC}
- a. $CD =$ _____
- b. $AC =$ _____

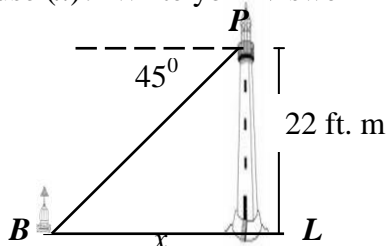


13. The base of a rectangle is 48 inches long. The diagonal makes an angle of 30° from the base. Find the length of the diagonal.

14. Write the sine ratio, the cosine ratio, and the tangent ratio of $\angle A$.

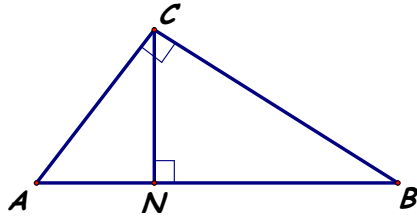


15. You know the height of a lighthouse and the angle of depression to a buoy as shown in the diagram. How far is the buoy from the lighthouse (x)? Write your answer in simplest radical form, if needed.



$x =$ _____

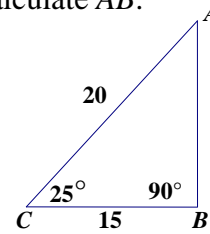
16. \overline{CN} is an altitude to the hypotenuse of a right triangle. Complete the proportion.



$$\frac{AN}{CN} = \frac{CN}{?}$$

17. Use the diagram at the right to find the expression that could be used to calculate AB .

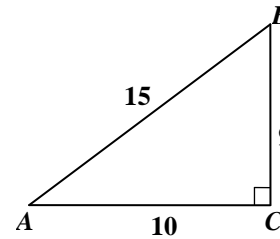
- A. $20 \cos 25^\circ$
- B. $20 \sin 25^\circ$
- C. $\frac{20}{\cos 25^\circ}$
- D. $\frac{20}{\sin 25^\circ}$



18. Use the dimensions given in the right triangle below.

What is the tangent of $\angle B$?

- A. $\frac{3}{5}$
- B. $\frac{2}{3}$
- C. $\frac{9}{10}$
- D. $\frac{10}{9}$

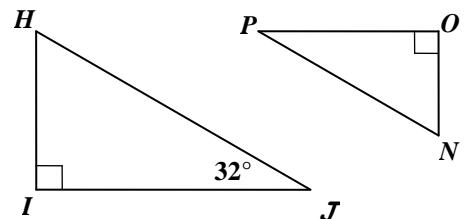


19. Mort measures the length of the shadow of a tree to be 30 feet long. At the same time his shadow measures 5 feet long and his height is 6 feet. How tall is the tree?

- A. 18 ft
- B. 30 ft
- C. 36 ft
- D. 60 ft

20. Given the two triangles pictured below, what measure for $\angle N$ would make $\triangle HIJ \sim \triangle NOP$?

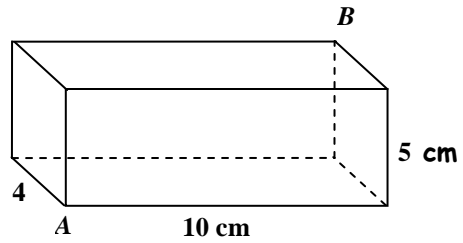
- A. 28°
- B. 48°
- C. 52°
- D. 58°



21. Use the dimensions given in the diagram below.

What is the length of the diagonal from A to B?

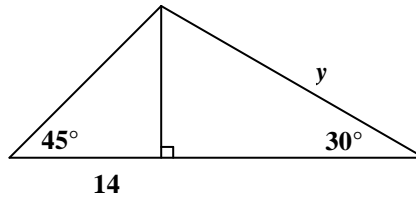
- A. $4\sqrt{10}$ cm
- B. $\sqrt{141}$ cm
- C. $5\sqrt{5}$ cm
- D. 15 cm



22. Use the dimensions given in the diagram below.

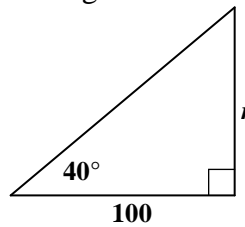
What is the value of y ?

- A. 7
- B. 14
- C. $14\sqrt{2}$
- D. 28



23. Use the table and the dimensions given in the diagram below.

θ	$\sin \theta$	$\cos \theta$	$\tan \theta$
20°	.3420	.9397	.3640
30°	.5000	.8660	.5774
40°	.6428	.7660	.8391
50°	.7660	.6428	1.1918



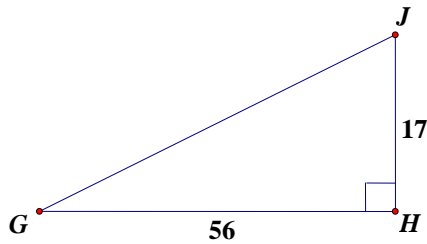
What is the value of r ?

- A. 64.28
- B. 76.60
- C. 83.91
- D. 119.18

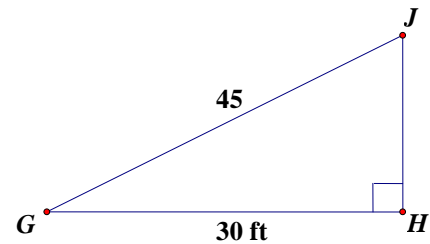
NOTE:
Semester 2 Exam Questions 28, 30, 31, 32, 36-47, and Free Response Question 2 apply to this unit. Review them carefully.

Calculator section - Round decimals to the nearest tenth.

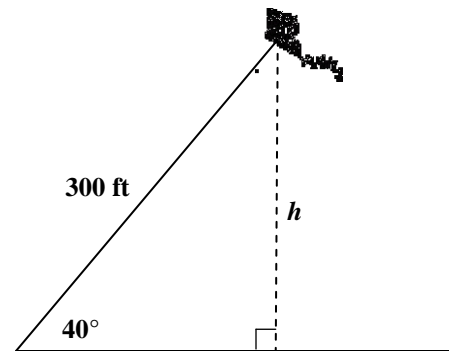
24. Solve the right triangle.



25. Find the area of the triangle.



26. Use the dimensions given in the diagram below.
What is the approximate height h of the kite off the ground in feet?



27. Use the dimensions given in the diagram below.
What is the airplane's approximate angle of descent?

