Name: _____   Date: _____

Using Trigonometry to Solve for Missing Sides
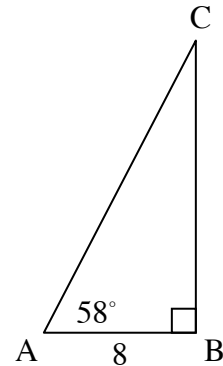## Algebra 1 Homework

Skill

In problems 1 through 3, determine the trigonometric ratio needed to solve for the missing side and then use this ratio to find the missing side.

1. In right triangle ABC, $m\angle A = 58°$ and $AB = 8$. Find the length of each of the following. Round your answers to the nearest *tenth*.

(a) BC

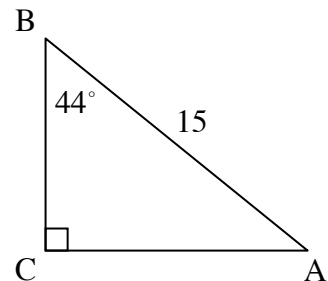(b) AC

2. In right triangle ABC, $m\angle B = 44°$ and $AB = 15$. Find the length of each of the following. Round your answers to the nearest *tenth*.
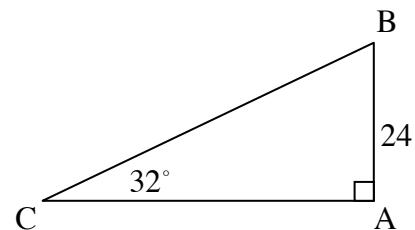
(a) AC

(b) BC

3. In right triangle ABC, $m\angle C = 32°$ and $AB = 24$. Find the length of each of the following. Round your answers to the nearest *tenth*.
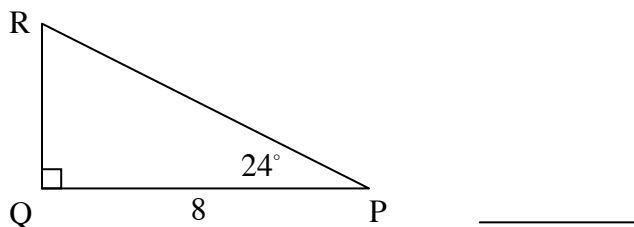
(a) AC

(b) BC

4. Which of the following would give the length of hypotenuse $\overline{PR}$ in the diagram below?

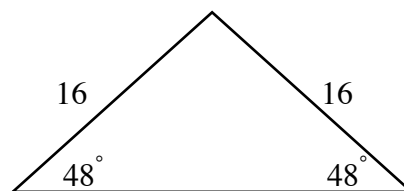(1) $8\cos\left(24^\circ\right)$

(3) $8\tan\left(24^\circ\right)$

(2) $\dfrac{8}{\cos\left(24^\circ\right)}$

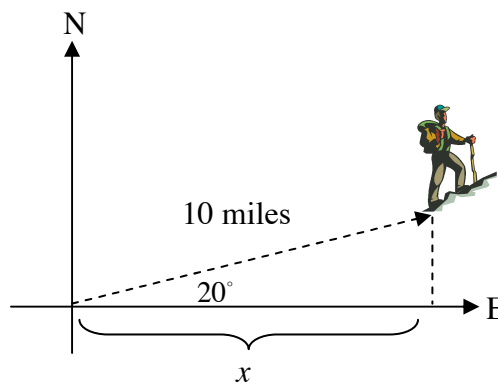(4) $\dfrac{8}{\tan\left(24^\circ\right)}$

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Applications

5. An isosceles triangle has legs of length 16 and base angles that measure 48°. Find the height of the isosceles triangle to the *nearest tenth*. Hint – Create a right triangle by drawing the height.

6. Carlos walked 10 miles at an angle of 20° north of due east. To the nearest tenth of a mile, how far east, x, is Carlos from his starting point?

7. Students are trying to determine the height of the flagpole at Arlington High. They have measured out a horizontal distance of 40 feet from the flagpole and site the top of it at an angle of elevation of 52°. What is the height, h, of the flagpole? Round your answer to the nearest *tenth* of a foot.