

6.2 Right triangle trigonometry

Do Now (PreQuiz)

1. Calculate each value. Round to the nearest thousandth.

(a) $\sin 19^\circ$

(c) $\tan 39^\circ$

(b) $\cos 53^\circ$

(d) $\sin 30^\circ$

2. Find θ . Round to the nearest whole degree.

(a) $\theta = \sin^{-1}\left(\frac{3}{10}\right)$

(c) $\theta = \cos^{-1}(0.707)$

(b) $\theta = \tan^{-1}(1.50)$

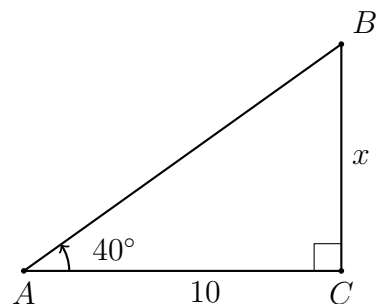
(d) $\tan \theta = \frac{2.6}{4.9}$

3. Solve each equation for x , rounding to the nearest tenth.

(a) $\cos 33^\circ = \frac{x}{21}$

(b) $\tan 16^\circ = \frac{3.7}{x}$

4. Given right $\triangle ABC$ with $AC = 10$, $m\angle A = 40^\circ$. Find the value of $BC = x$.



5. Graph and label $\triangle ABC$ with $A(0,0)$, $B(5,3)$, and $C(5,0)$. Calculate the length of each side of the triangle.

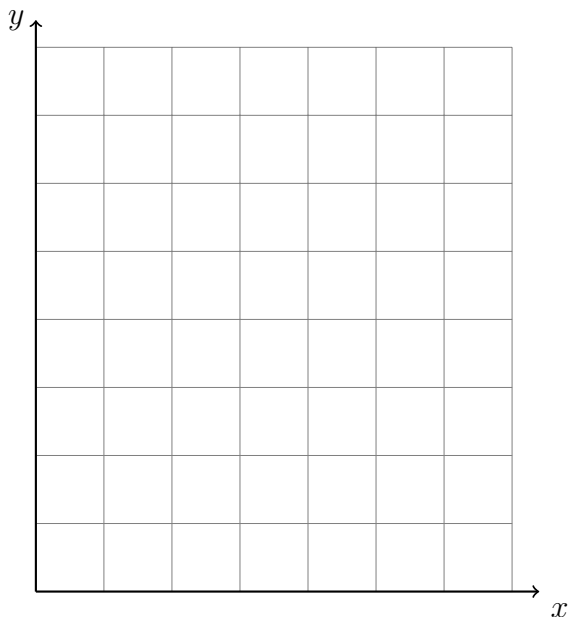
(a) $AC =$

(b) $BC =$

- (c) For the hypotenuse express the length as a radical.

(hint: use the Pythagorean theorem $a^2 + b^2 = c^2$)

$AB =$



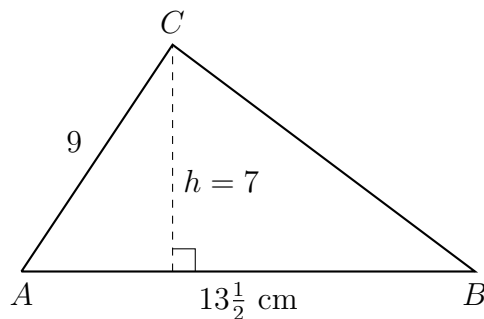
- (d) Find the measure of angle \hat{A} .

6. Given $\triangle ABC$ with $AC = 9$ centimeters, altitude $h = 7$ cm, and the base $AB = 13\frac{1}{2}$ cm. (diagram not to scale)

- (a) Write down $\sin A$.

- (b) Find the measure of angle \hat{A} .

- (c) Find the area of $\triangle ABC$.



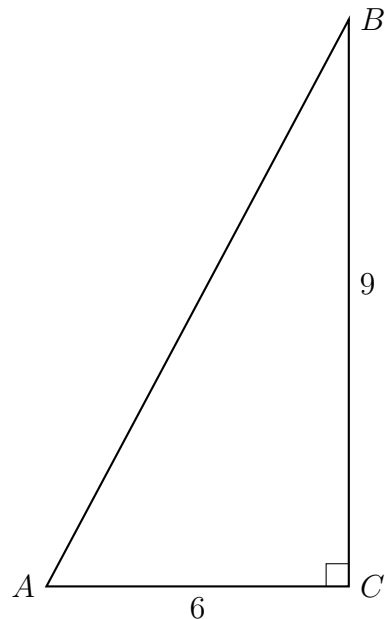
7. $\triangle ABC$ is shown with $m\angle C = 90^\circ$ and the lengths of the triangle's sides are $AC = 6$, $BC = 9$. (not drawn to scale)

(a) Write down the value of $\tan A$.

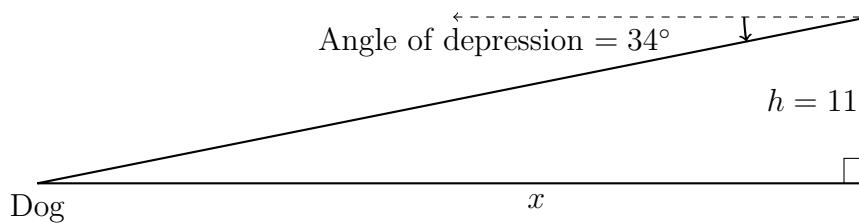
(b) Find the measure of $\angle A$.

(c) Write down the value of $\tan B$.

(d) Find the measure of $\angle B$.



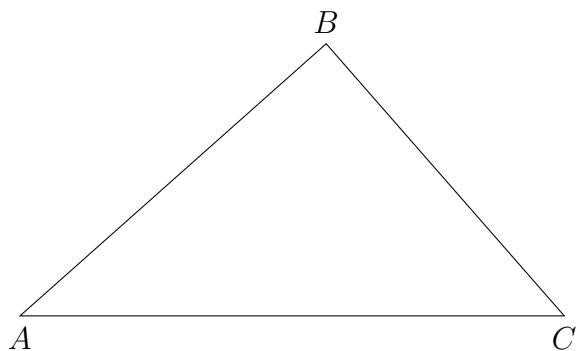
8. From the top of a hill a dog is visible at an angle of depression of 34° . If the hill is 11 meters tall, determine the distance from the dog to the base of the hill, x , to the nearest meter.



9. Triangle ABC has $\hat{A} = 40^\circ$, $AB = 7$ cm, $BC = 6$ cm. Find the measure of \hat{C} .

(a) Write down the law of sines, substituting appropriate values.

(b) Solve for the measure of angle C



10. The right $\triangle ABC$ has a base of $AC = 6$ units. The area of the triangle is 15 square units. Find the lengths of all three sides and measures of all angles of the triangle. (“solve the triangle”)

