

**6.2 Right triangle trigonometry****HSG.SRT.C.8**

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  $\theta$ . Round to the nearest whole degree.

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

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

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

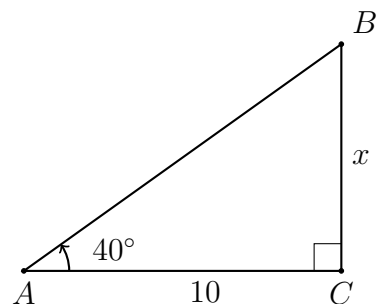
(d)  $\tan \theta = \frac{2.6}{4.9}$

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.

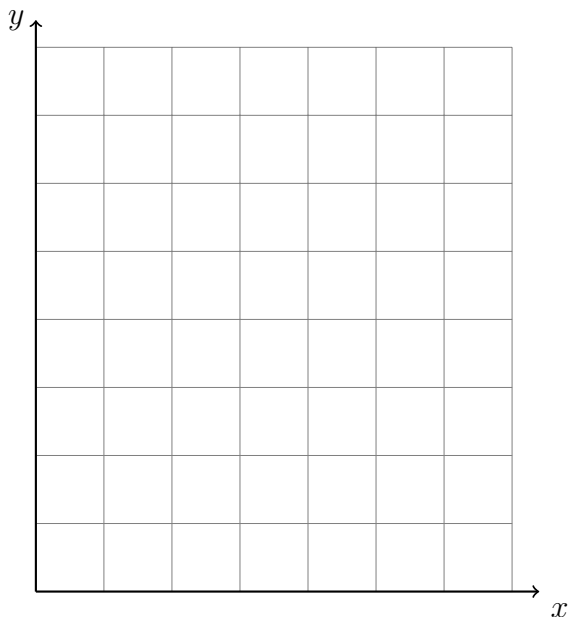
(a)  $AC =$

(b)  $BC =$

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

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

$AB =$



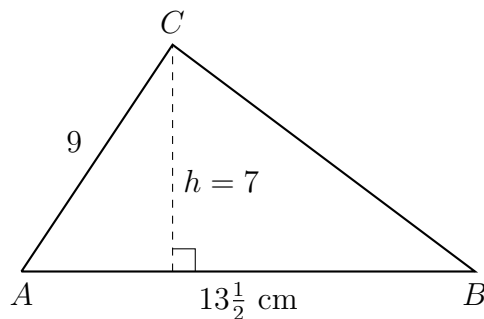
- (d) Find the measure of angle  $\hat{A}$ .

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  $\triangle ABC$ .



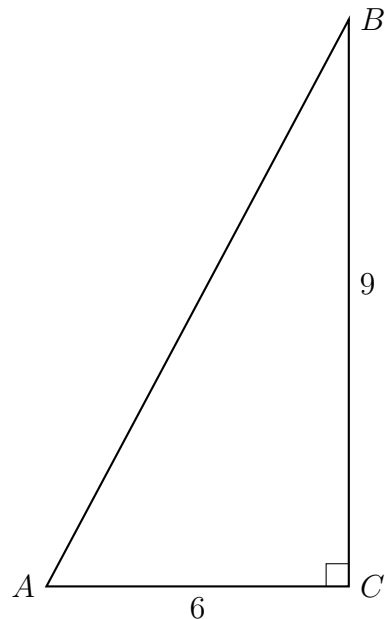
7.  $\triangle ABC$  is shown with  $m\angle C = 90^\circ$  and the lengths of the triangle's sides are  $AC = 6$ ,  $BC = 9$ . (not drawn to scale)

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

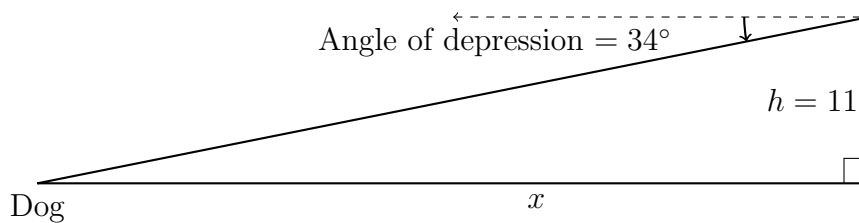
(b) Find the measure of  $\angle A$ .

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

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



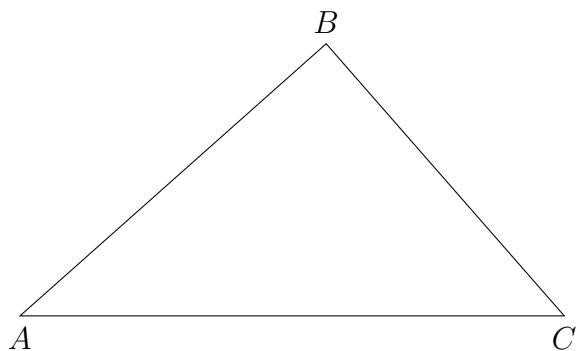
8. From the top of a hill a dog is visible at an angle of depression of  $34^\circ$ . If the hill is 11 meters tall, determine the distance from the dog to the base of the hill,  $x$ , to the nearest meter.



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”)

