BECA / IB Math 6 Geometry Name:
16 March 2022

6.2 Right triangle trigonometry

Do Now (PreQuiz)

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

   (a) $\sin 19^\circ$

   (b) $\cos 53^\circ$

   (c) $\tan 39^\circ$

   (d) $\sin 30^\circ$

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

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

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

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

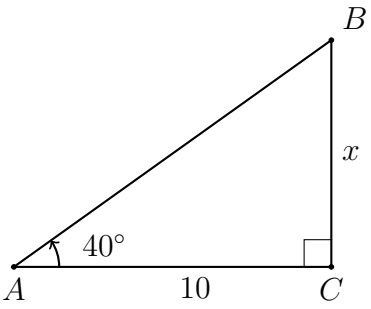
   (d) $\tan\theta = \dfrac{2.6}{4.9}$

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

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

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

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.

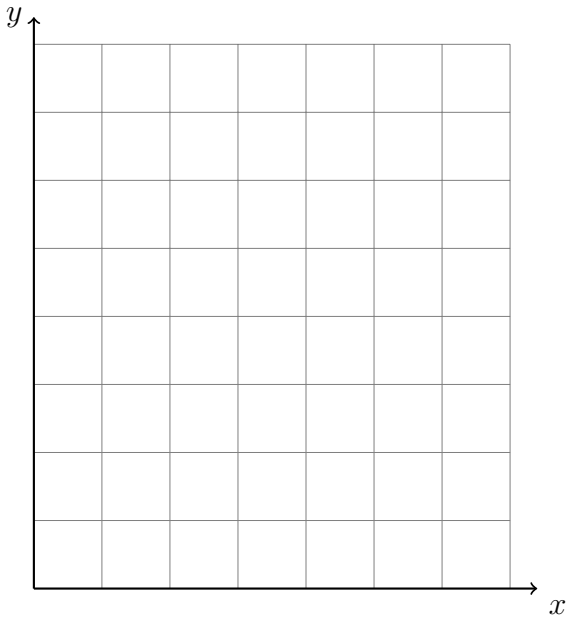
   (a) $AC =$

   (b) $BC =$

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

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

   $AB =$



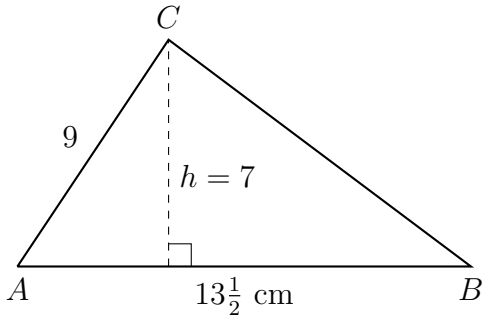
   (d) Find the measure of angle $\hat{A}$.

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 $\triangle ABC$.



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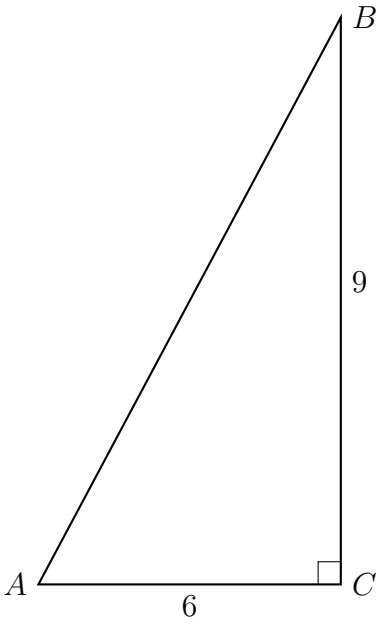
7. $\triangle ABC$ is shown with $m\angle C = 90°$ and the lengths of the triangle's sides are $AC = 6$, $BC = 9$. (not drawn to scale)



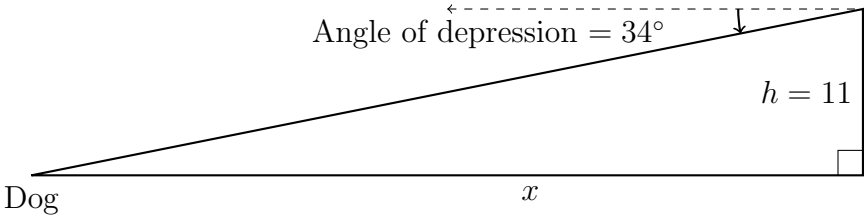
   (a) Write down the value of $\tan A$.

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

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

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

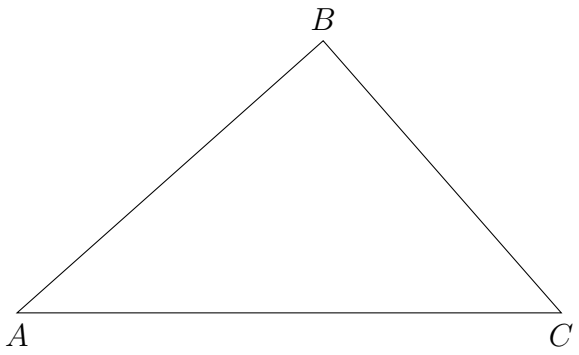
8. From the top of a hill a dog is visible at an angle of depression of 34°. If the hill is 11 meters tall, determine the distance from the dog to the base of the hill, x, to the *nearest meter*.



9. Triangle ABC has $\hat{A} = 40°$, $AB = 7$ 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")