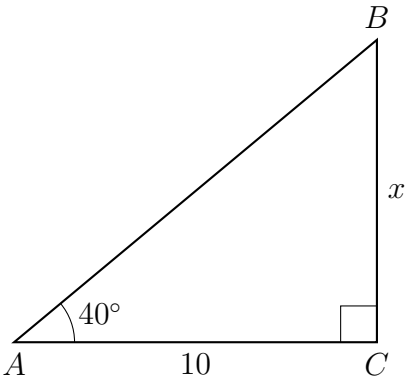
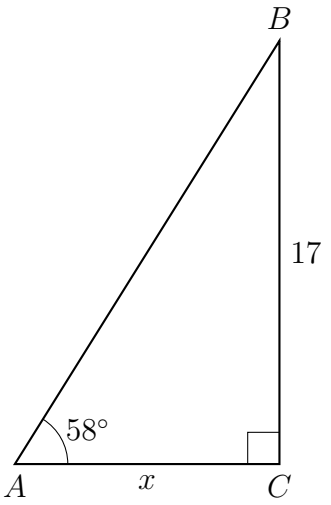
10.7 Quiz: The tangent function **CCSS.HSG.SRT.C.8**

You must write an equation before solving it. Figures are not necessarily drawn to scale.

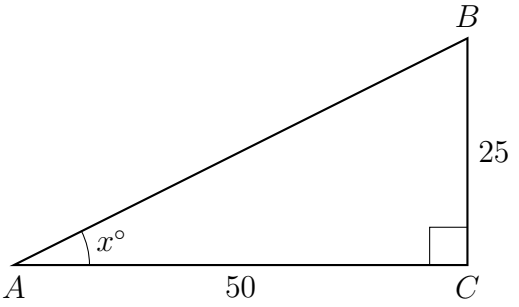
1. Given right $\triangle ABC$ with $AC = 10$, $\text{m}\angle A = 40°$. Find the value of $BC = x$.



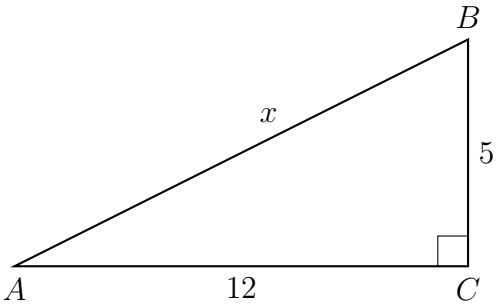
2. The right $\triangle ABC$ has a height of $BC = 17$ and $\text{m}\angle A = 58°$. Find the length of its base $AC = x$.



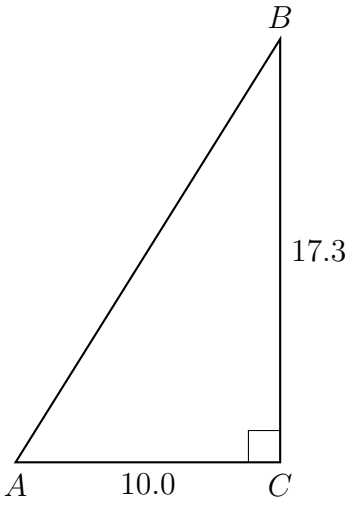
3. The lengths of the legs of right $\triangle ABC$ are $AC = 50$ and $BC = 25$. Find $\text{m}\angle A = x$.



4. The dimensions of right $\triangle ABC$ are $AC = 12$ and $BC = 5$. Find length of the hypotenuse $AB = x$.



5. The base of right $\triangle ABC$ is 10.0 and its height is 17.3. Find the length of its hypotenuse AB, to the *nearest tenth*.



Find x to the *nearest tenth*.

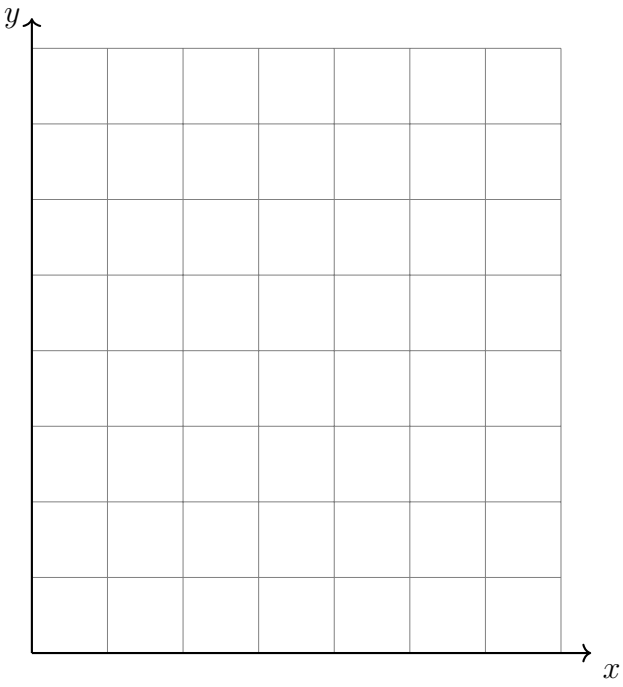
6. $\tan 75^\circ = \dfrac{x}{15}$

7. $\tan 26^\circ = \dfrac{4}{x}$

8. $x = \tan^{-1}(\frac{2}{3.5})$

9. $\tan x^\circ = \frac{17}{9}$

10. Graph and label $\triangle ABC$ with $A(0,0)$, $B(3,6)$, and $C(3,0)$. Calculate each value:



(a) $AC =$

(b) $BC =$

(c) Express first as a radical, then approximate with a decimal rounded to two decimal places.

$AB =$

(d) Use a protractor to measure $m\angle BAC = \theta$ in degrees.

(e) The tangent of an angle is the ratio of the side lengths *opposite* over *adjacent* to the angle. Write down the value as a fraction.

$\tan\theta =$

(f) Find $m\angle BAC = \theta$ in degrees with a calculator's inverse tangent function.
$\theta = \tan^{-1}(\frac{opp}{adj})$

(g) Convert θ to radians. ($180^\circ = \pi$ radians)

Mastery topic: Calculator use

11. Express the result to the nearest thousandth.

(a) $\tan 22° =$

(b) $\tan 81° =$

(c) $\tan 15° =$

(d) $\tan 65° =$

12. Round each value to the nearest degree.

(a) $\tan^{-1}(2) =$

(b) $\tan^{-1}(0.5) =$

(c) $\tan^{-1}(1) =$

(d) $\tan^{-1}(\frac{1}{\sqrt{3}}) =$

Mastery topic: Modeling situations with right triangles

13. A tree casts a shadow 12 feet long. The angle of elevation from the tip of the shadow to the top of the tree is 70°. To the nearest foot, how tall is the tree?