

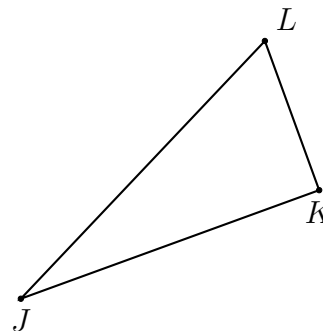
Name:

BECA / Dr. Huson / Geometry 6 Trigonometry

6.13 Classwork: Tangent variations**CCSS.HSG.SRT.C.8**

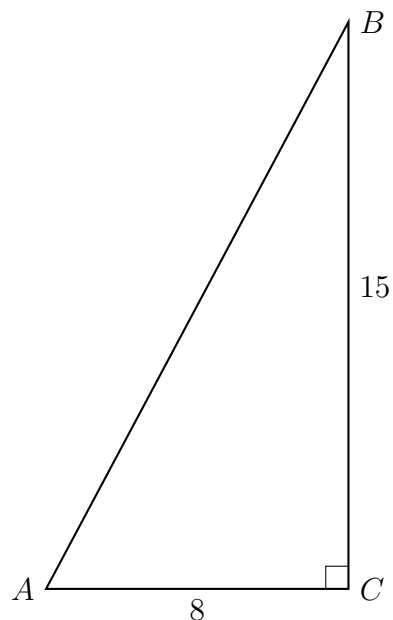
For a right triangle, $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$

1. Do Now: Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JK = 10$, $m\angle J = 31^\circ$. Let x be the length of the side opposite $\angle J$, $x = KL$.
 - (a) Mark up the triangle.
 - (b) Find x .



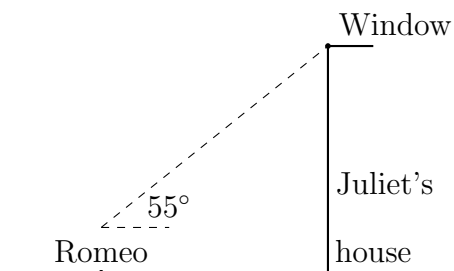
2. $\triangle ABC$ is shown with $m\angle C = 90^\circ$ and the lengths of the triangle's sides are $AC = 8$, $BC = 15$.
(not drawn to scale)

- (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 $\angle B$ two different ways.
- (e) Find AB .

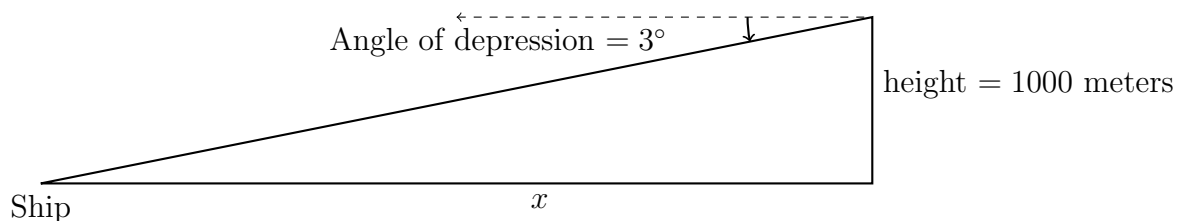


3. Romeo is standing 8 meters away from Juliet's house, looking up at Juliet's window. He is two meters tall and looks up at a 55° angle.

Find the height of Juliet's window ledge to the *nearest meter*. (not drawn to scale)



4. From the top of a lighthouse, a ship is visible at an angle of depression of 3° . If the lighthouse is 1000 meters tall, determine the distance of the ship from the lighthouse, x , to the *nearest kilometer*.



5. An airplane flying at an altitude of 3,000 meters is observed twice. The first time the angle of elevation is 5° and exactly one minute later the angle of elevation is 7.5° .

Find the distance the plane flies over the minute and its speed in kilometers per hour.

