10.8 Classwork: Sine and Cosine functions

HSG.SRT.C.8

1. Right triangle $\triangle ABC$ is shown with side lengths marked. Identify the sides.

   (a) Which length is the hypotenuse?

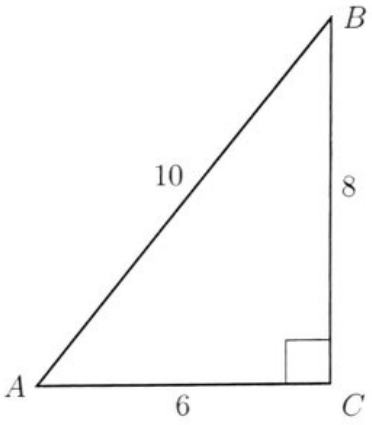
   10

   (b) Which length is *opposite* angle A?

   8

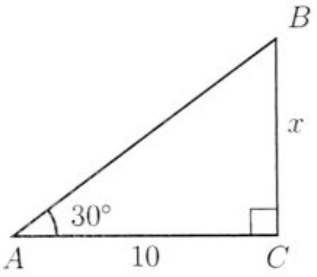
   (c) Which length is *adjacent* to angle A?

   6

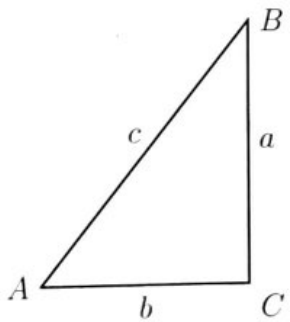


2. Use the tangent function to find the value of $BC = x$ for $\triangle ABC$ as shown.

$$\tan 30 = \frac{x}{10}$$
$$x = 10 \tan 30°$$
$$= 5.77350\ldots$$
$$\approx 5.77$$



3. $\triangle ABC$ is shown with $m\angle C = 90°$. The lengths of the triangle's sides are a, b, and c. Express each trigonometric ratio as a fraction of two variables.



(a) $\sin B = \frac{b}{c}$

(b) $\cos B = \frac{a}{c}$

(c) $\tan B = \frac{b}{a}$

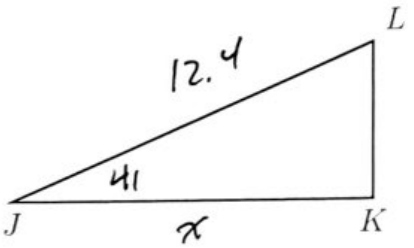
4. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JL = 12.4$, $m\angle J = 41°$. Find the length JK, *rounded to the nearest hundredth.*

$\cos 41 = \frac{x}{12.4}$

$x = 12.4 \cos 41$

$= 9.358398\ldots$

≈ 9.36



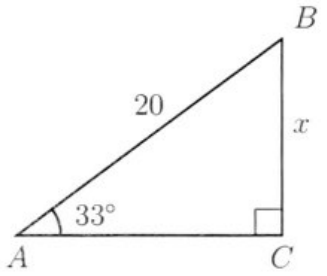
5. Right triangle ABC is shown with $AB = 20$, $m\angle A = 33°$. Find the value of $BC = x$.

$\sin 33 = \frac{x}{20}$

$x = 20 \sin 33$

$= 10.85278\ldots$

≈ 10.9



6. Express the result to *the nearest thousandth.*

(a) $\sin 32° = 0.529919\ldots \approx 0.530$

(b) $\cos 29° = 0.874619\ldots \approx 0.875$

(c) $\cos 58° = 0.529919\ldots \approx 0.530$

(d) $\sin 61° = 0.874619\ldots \approx 0.875$

7. Express the result to *the nearest whole degree.*

(a) $\sin^{-1} 0.420 = 24.8345\ldots \approx 25°$

(b) $\cos^{-1} 0.675 = 47.54584\ldots \approx 48°$

(c) $\cos^{-1} 0.850 = 31.7883\ldots \approx 32°$

(d) $\sin^{-1} 0.125 = 7.180755\ldots \approx 7°$