Name: *Solutions*

10.4 Do Now Quiz: Trigonometric functions   **HSG.SRT.C.8**

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

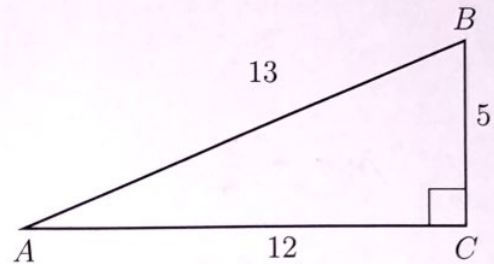   (a) Which length is the hypotenuse?
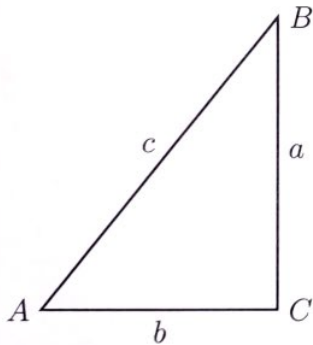
   13

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

   5

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

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2. $\triangle ABC$ 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 lengths.

   (a) $\tan A = \dfrac{a}{b}$

   (b) $\sin A = \dfrac{a}{c}$

   (c) $\cos A = \dfrac{b}{c}$

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

   (a) $\tan 81° =$ **6.3137515...**
   $\approx$ **6.314**

   (b) $\sin 16° =$ **0.275637...**
   $\approx$ **0.276**

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

   (a) $\sin^{-1} 0.675 =$ **42.4541...**
   $\approx$ **42**

   (b) $\tan^{-1} 1.15 =$ **48.9909...**
   $\approx$ **49**

5. Are the lines parallel, perpendicular, or neither? Justify your answer.
   (you must use the values of the slopes in your justification)

$y = -\frac{5}{3}x + 5$ $y = \frac{3}{5}x - 4$

$m_1 = -\frac{5}{3}$ $m_2 = \frac{3}{5}$

$m_1 \neq m_2$

$m_1 \cdot m_2 = -1$ $\Rightarrow$ perpendicular

6. Given $P(1,7)$ and $Q(5,5)$, find the length of $\overline{PQ}$, expressed as a simplified radical.

Use: $l = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

$= \sqrt{(5-1)^2 + (5-7)^2}$

$= \sqrt{16 + 4}$

$= \sqrt{20} = 2\sqrt{5}$

7. A translation $T_{x,y}$ maps $A(6,2) \rightarrow A'(3,7)$.

   (a) Write down the translation.

   $T_{-3, +5}$

   (b) Apply the same translation to $B(5,1)$.

   $B' = (2, 6)$

8. $A(2,3)$ is one endpoint of $\overline{AB}$. The segment's midpoint is $M(5,7)$. Find the other endpoint B. (hint: find the translation that maps $A \rightarrow M$, then apply it to map $M \rightarrow B$.)

$A \xrightarrow{T_{+3, +4}} M$ $M \xrightarrow{T_{+3, +4}} B(8, 11)$