Name:

BECA / Dr. Huson / Geometry 6 Trigonometry

6.9 Classwork: Unit circle **CCSS.HSG.SRT.C.8**

1. Do Now: A vector from the origin $\overrightarrow{OA}$ is shown rotated counterclockwise around O.

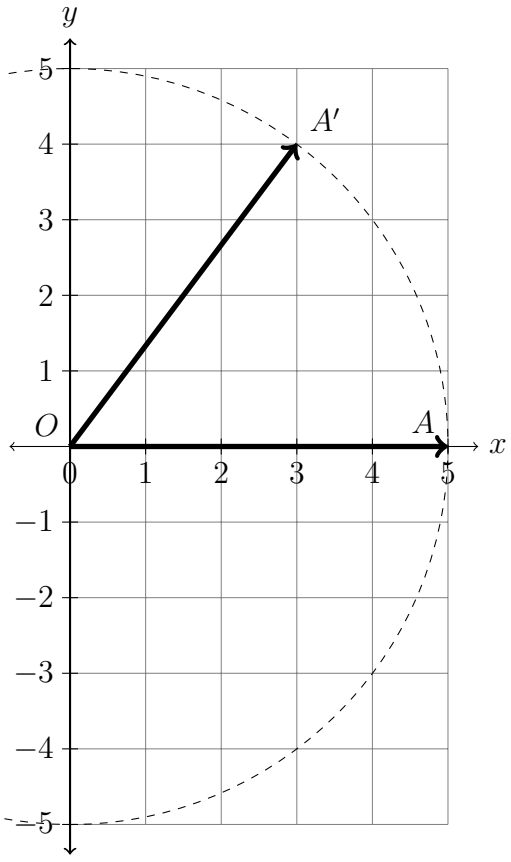
   (a) Using a protractor, measure the angle of rotation.

   (b) Write down the slope of $\overrightarrow{OA'}$.

   (c) Mark and label the point $B(4, -3)$. Draw $\overrightarrow{OB}$.

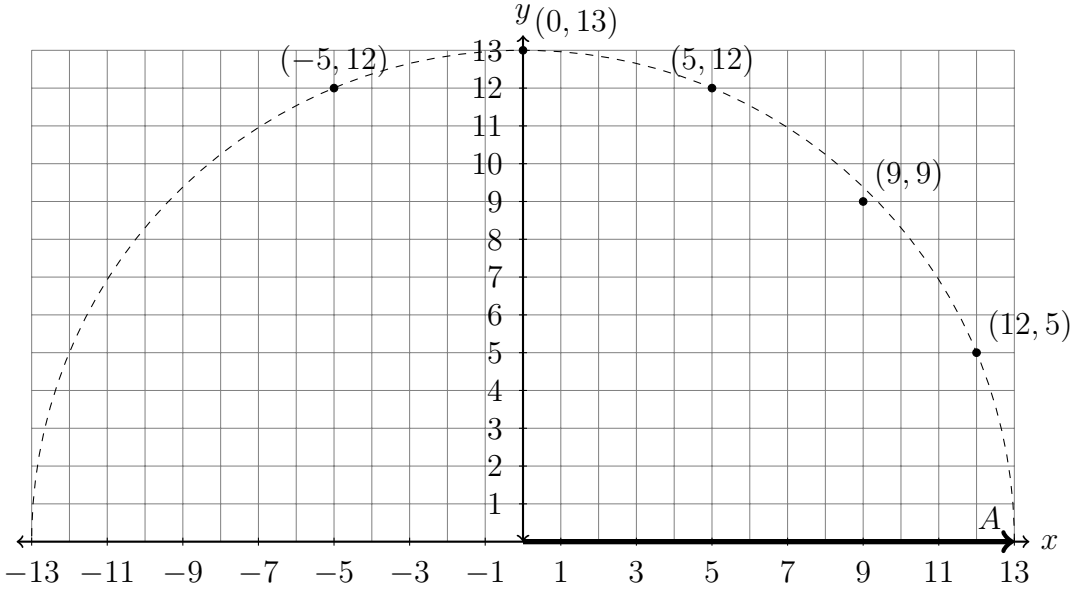
   (d) Write down the slope of $\overrightarrow{OB}$.

   (e) What is the product of the slopes of $\overrightarrow{OA'}$ and $\overrightarrow{OB}$?



2. Complete the table mapping angle of rotation onto slope. (six entries)

angle	slope
0	
	5/12



Mastery topic: Algebraic solution **(2 stars each)**

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

   (a) $\tan 63^\circ = \dfrac{x}{14}$

   (b) $\tan 77^\circ = \dfrac{10}{x}$

   (c) $\sin 46^\circ = \dfrac{x}{3.5}$

   (d) $\cos 35^\circ = \dfrac{x}{21}$

4. Solve for x, rounding to the nearest whole degree.

   (a) $x = \tan^{-1}(\dfrac{12}{5})$

   (b) $\tan x^\circ = \dfrac{3.2}{4.8}$

Name:

BECA / Dr. Huson / Geometry 6 Trigonometry

Mastery topic: Calculator use

5. Express the result to the nearest thousandth. (1 star each)

   (a) $\tan 22° =$

   (b) $\tan 81° =$

   (c) $\tan 15° =$

   (d) $\tan 65° =$

6. Round each value to the nearest degree. (1 star each)

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

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

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

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

7. Round each value to the nearest hundredth. (2 stars each)

   (a) $AB = \sqrt{11^2 + 7^2}$

   (b) $AB = \sqrt{3.2^2 + 1.9^2}$

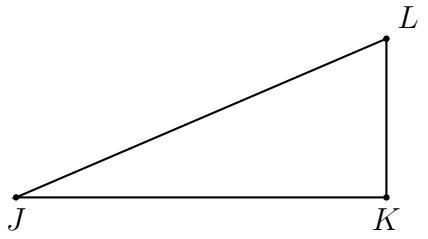
   (c) $AB = \sqrt{(-8.0)^2 + (14.5)^2}$

   (d) $AB = \sqrt{(4-3)^2 + (7-11)^2}$

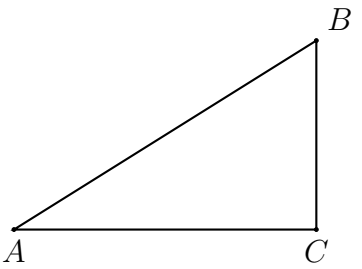
Modeling: Mark each diagram and write and equation. Do Not Solve!

Write an equation expressing $\tan(\angle)$ as a ratio of *opposite* over *adjacent*.

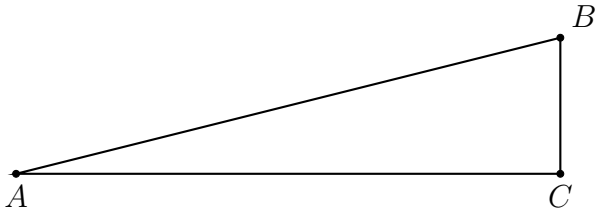
8. Given right $\triangle JKL$ with $\overline{JK} \perp \overline{KL}$, $JK = 8$, $m\angle J = 24°$. Let x be the length of the side opposite $\angle J$, $x = KL$. (2 stars)



9. Given right $\triangle ABC$ with $m\angle C = 90°$, $BC = 15$, $m\angle A = 41°$. Let $x = AC$. (2 stars)



10. Given right $\triangle ABC$ with $m\angle C = 90°$, $BC = 4$, $AC = 19$, and $m\angle A = x°$. (2 stars)



11. Given right $\triangle ABC$ with $\overline{AC} \perp \overline{BC}$, $BC = 7$, $m\angle B = 55°$. Let $x = AC$. (3 stars)