

AA Warm Up 13-14 - Microsoft Word

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WARM UP

5/7/14

Target 9B & 9C

Sketch each angle. Then find the reference angle, theta prime.

1) 260°

$$\theta' = \theta - 180$$

$$= 260 - 180 = \boxed{80^\circ}$$



2) $\frac{11\pi}{6} \cdot \frac{180}{\pi} = 330^\circ$

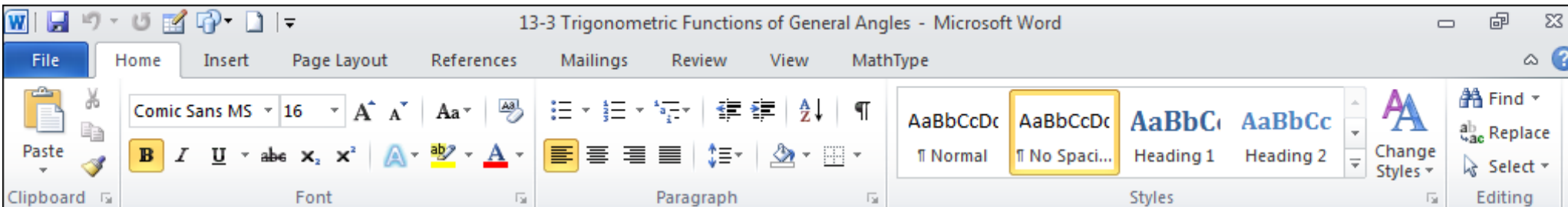
$$\theta' = 360 - \theta$$

$$= 360 - 30 = 330$$

$$= 30^\circ$$



$$30 \cdot \frac{\pi}{180} = \frac{30\pi}{180} = \boxed{\frac{\pi}{6}}$$



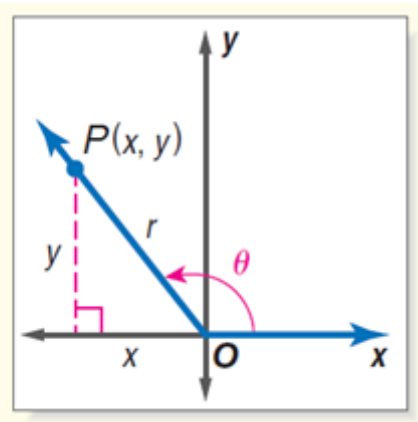
13.3. Advanced Algebra Trig Functions of General Angles (Part 2)

DATE: 5/7

Target 9.D. Determine the exact values of the six trigonometric functions given the terminal side of θ passing through a given point $P(x,y)$ or using reference triangles.

Trigonometric Functions, θ in Standard Position

Let θ be an angle in standard position and let $P(x,y)$ be a point on the terminal side of θ . Using the Pythagorean Theorem, the distance r from the origin to P is given by $r = \sqrt{x^2 + y^2}$. The trigonometric functions of an angle in standard position may be defined as follows:



$\sin \theta = \frac{y}{r} = \frac{\text{opp}}{\text{hyp}}$	$\cos \theta = \frac{x}{r} = \frac{\text{adj}}{\text{hyp}}$	$\tan \theta = \frac{y}{x}, x \neq 0$ <i>// opp / adj</i>
$\csc \theta = \frac{r}{y}, y \neq 0$ <i>// hyp / opp</i>	$\sec \theta = \frac{r}{x}, x \neq 0$ <i>// hyp / adj</i>	$\cot \theta = \frac{x}{y}, y \neq 0$ <i>// adj / opp</i>

Evaluate Trigonometric Functions for a Given Point

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Evaluate Trigonometric Functions for a Given Point

Find the exact values of the six trigonometric functions of θ if the terminal side of θ contains the given point.

1. $(5, -12)$

$$1. \sin \theta = \frac{y}{r} = \frac{-12}{13}$$

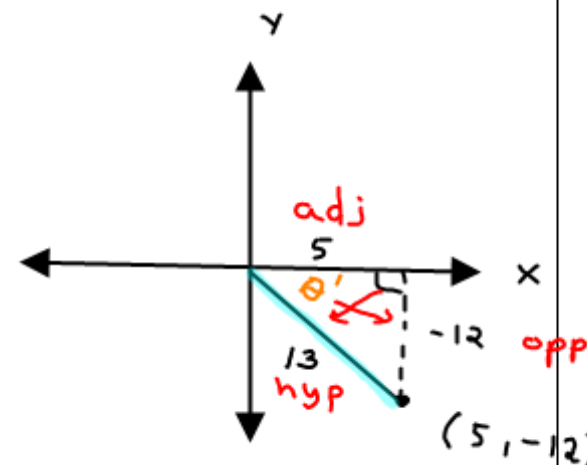
$$2. \cos \theta = \frac{x}{r} = \frac{5}{13}$$

$$3. \tan \theta = \frac{y}{x} = \frac{-12}{5}$$

$$4. \csc \theta = \frac{r}{y} = \frac{13}{-12}$$

$$5. \sec \theta = \frac{r}{x} = \frac{13}{5}$$

$$6. \cot \theta = \frac{x}{y} = \frac{5}{-12}$$



$$r = \sqrt{x^2 + y^2}$$

$$= \sqrt{(5)^2 + (-12)^2}$$

$$= 13$$



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Find the exact values of the six trigonometric functions of θ if the terminal side of θ contains the given point.

2. $\begin{matrix} x & y \\ (8, & 15) \end{matrix}$

$$1. \sin \theta = \frac{15}{17}$$

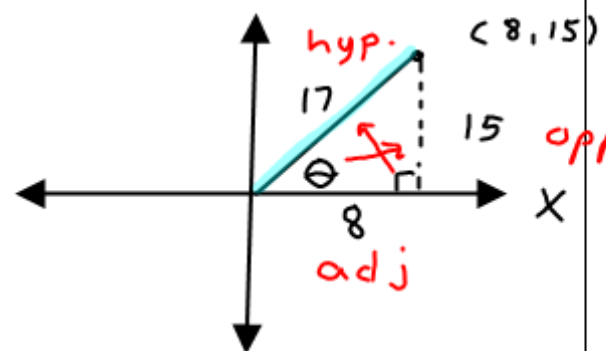
$$2. \cos \theta = \frac{8}{17}$$

$$3. \tan \theta = \frac{15}{8}$$

$$4. \csc \theta = \frac{17}{15}$$

$$5. \sec \theta = \frac{17}{8}$$

$$6. \cot \theta = \frac{8}{15}$$



$$r = \sqrt{8^2 + 15^2} = 17$$

Find the exact values of the six trigonometric functions of θ if the terminal side of θ contains the given point.

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Find the exact values of the six trigonometric functions of θ if the terminal side of θ contains the given point.

3. $(-3, -4)$

1. $\sin \theta = -\frac{4}{5}$

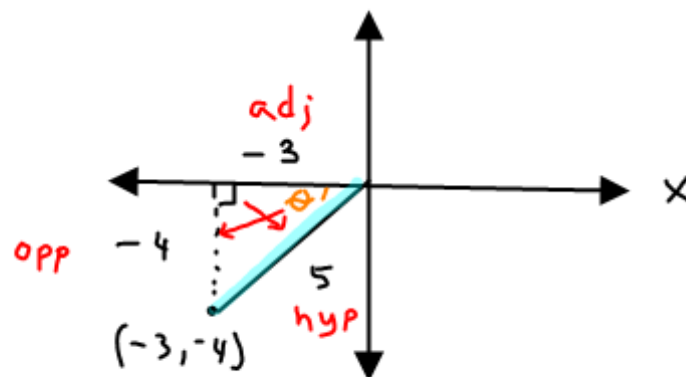
2. $\cos \theta = -\frac{3}{5}$

3. $\tan \theta = \frac{-4}{-3} = \frac{4}{3}$

4. $\csc \theta = \frac{5}{-4}$

5. $\sec \theta = \frac{5}{-3}$

6. $\cot \theta = \frac{3}{4}$



$$r = \sqrt{(-3)^2 + (-4)^2} = 5$$

