Pre Calculus Name _____

Unit Circle Trigonometry Notes

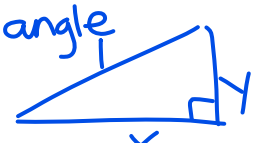
Date _____ Period ____

Show that the point is on the unit circle. $r = 1$

1) $\left(-\frac{5}{13}, \frac{12}{13}\right)$

any point is (x, y)

any right triangle will look like



$x^2 + y^2 = 1$

$\left(-\frac{5}{13}\right)^2 + \left(\frac{12}{13}\right)^2 = \frac{25}{169} + \frac{144}{169} = \frac{169}{169} = 1$

2) $\left(-\frac{5}{7}, -\frac{2\sqrt{6}}{7}\right)$

$\left(-\frac{5}{7}\right)^2 + \left(-\frac{2\sqrt{6}}{7}\right)^2 =$

$\frac{25}{49} + \frac{24}{49} = \frac{49}{49}$

$= 1 \checkmark$

Find the missing coordinate of P, using the fact that P lies on the unit circle in the given quadrant.

3) $P\left(x, \frac{7}{25}\right)$ Quadrant I

$x^2 + \left(\frac{7}{25}\right)^2 = 1$

$x^2 + \frac{49}{625} = 1$

$x^2 = \frac{576}{625}$

$x = \frac{24}{25}$

4) $P\left(\frac{\sqrt{2}}{3}, y\right)$; Quadrant IV

$\left(\frac{\sqrt{2}}{3}\right)^2 + y^2 = 1$

$\frac{2}{9} + y^2 = 1$

$y^2 = \frac{7}{9}$

$y = -\frac{\sqrt{7}}{3}$

Find the terminal point P (x,y) on the unit circle determined by the value of θ, ~~the reference angle.~~

5) $\theta = -\pi/2$ $(0, -1)$

6) $\theta = 3\pi/2$ $(0, -1)$

7) $\theta = \pi$ $(-1, 0)$

8) $\theta = \frac{\pi}{6}$ $\left(\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$

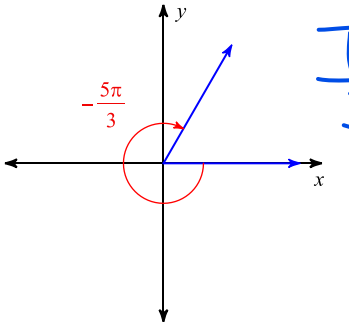
9) $\theta = -\frac{2\pi}{3}$ $\left(-\frac{1}{2}, -\frac{\sqrt{3}}{2}\right)$

10) $\theta = -\frac{5\pi}{4}$ $\left(-\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2}\right)$

acute positive angle between terminal side of angle and x-axis

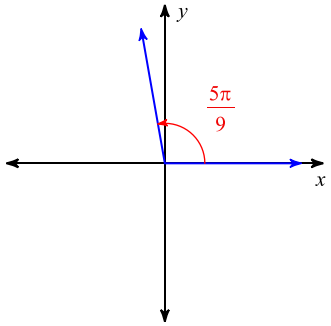
Find the reference angle.

11)



$\frac{\pi}{3}$

12)



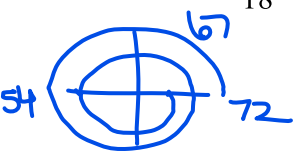
$\frac{4\pi}{9}$

State the quadrant in which the terminal side of each angle lies.

13) $-\frac{\pi}{4}$ IV

14) $-\frac{4\pi}{3}$ II

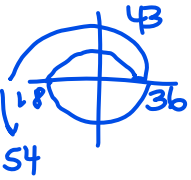
15) $-\frac{67\pi}{18}$ I



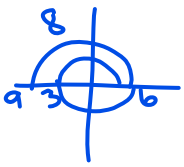
16) $\frac{10\pi}{9}$ III

Find the reference angle.

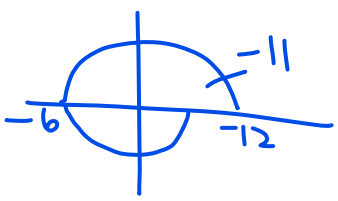
17) $\frac{43\pi}{18}$ $\frac{7\pi}{18}$



18) $\frac{8\pi}{3}$ $\frac{\pi}{3}$



19) $-\frac{11\pi}{6}$ $\frac{\pi}{6}$



20) $-\frac{31\pi}{18}$ $\frac{5\pi}{18}$