Section 7-3 The Sine and Cosine Functions

Objective: To use the definitions of sine and cosine to find values of these functions and to solve simple trigonometric equations.

Suppose a point P(x,y) is a point on the circle $x^2 + y^2 = r^2$ and θ is an angle in standard position with a terminal ray $\overrightarrow{OP}$. We define $\sin\theta$ and $\cos\theta$, by:

$$\sin\theta = \frac{y}{r} \qquad\qquad \cos\theta = \frac{x}{r}$$

Problem #1

If the terminal ray of an angle θ in standard position passes through the point (-2,1), find $\sin\theta$ and $\cos\theta$.

Problem #2

What is θ and a coordinate of the terminal ray of $\sin\theta = \frac{3}{5}$?

Now do p. 269 activity.

The circle $x^2 + y^2 = 1$ **has a radius of 1 and is called the** <u>**unit circle.**</u>

Problem #3

State whether the sine and the cosine of each angle is positive, negative, one or zero.

a. $-\dfrac{2\pi}{3}$ **b.** $180°$ **c.** 3π **d.** $70°$

Problem #4 _____

Complete each statement using >, < or =.

a. $\sin 30°$ _____ $\sin(-30°)$

b. $\cos 30°$ _____ $\cos(-30°)$

c. $\cos 300°$ _____ $\cos 330°$