

Practice Review - Sec 4.1 - Angles & Radian Measures, standard, reference, coterminal

Name: _____

Date: _____

KEY

1. Change the following degree measures to radian measures in terms of π .

* a) $320^\circ =$ _____ radians

$$320^\circ \cdot \frac{\pi}{180} = \frac{32\pi}{18} = \frac{16\pi}{9}$$

b) $6^\circ =$ _____ radians

$$\frac{\pi}{30}$$

2. Change the following radian measures to degree measures. Round each to the nearest minute.

* a) $\frac{-13\pi}{3} =$ _____

$$\frac{-13\pi}{3} \cdot \frac{180^\circ}{\pi} = -780^\circ$$

b) $\frac{11\pi}{144} =$ 13.75°

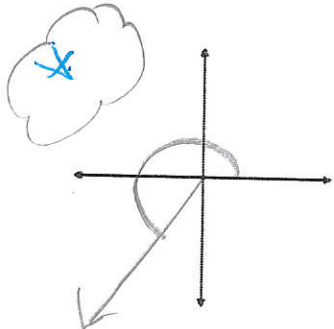
c) $5 =$ _____

$$5 \text{ rad} \cdot \frac{180^\circ}{\pi} = \frac{900}{\pi} \approx 286.6^\circ$$

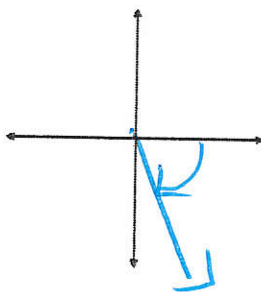
d) $7.35 =$ 421°

3. Draw the following angles in standard position.

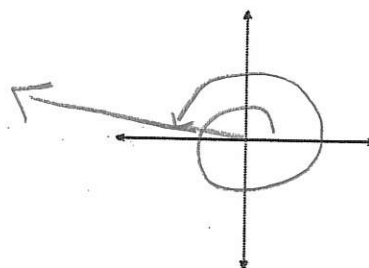
a) $\frac{7\pi}{5}$



b) $-\frac{3\pi}{7}$



c) $527^\circ = 360^\circ + 167^\circ$



4. Find one negative and one positive angle that is coterminal with each of the following that is less than 360 degrees:

a) $\frac{15\pi}{14}$

Pos: $\frac{43\pi}{14}$

Neg: $-\frac{13\pi}{14}$

b) $-\frac{\pi}{5}$

Pos: $\frac{9\pi}{5}$

Neg: $-\frac{11\pi}{5}$

c) 389°

Pos: 29°

Neg: -331°

d) -120°

Pos: 240°

Neg: -480°

± 360

$\pm 2\pi$

5. Identify all angles that are coterminal with:

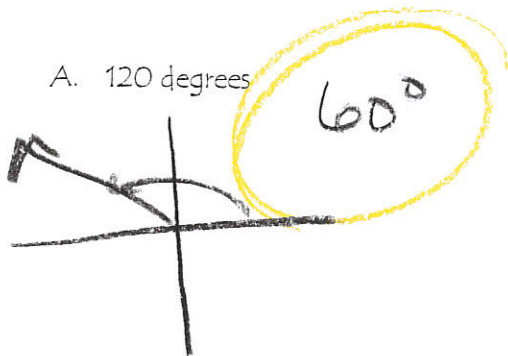
a) $75^\circ =$ $75^\circ \pm 360k$

* b) $\frac{\pi}{6} =$ $\frac{\pi}{6} \pm 2\pi k$

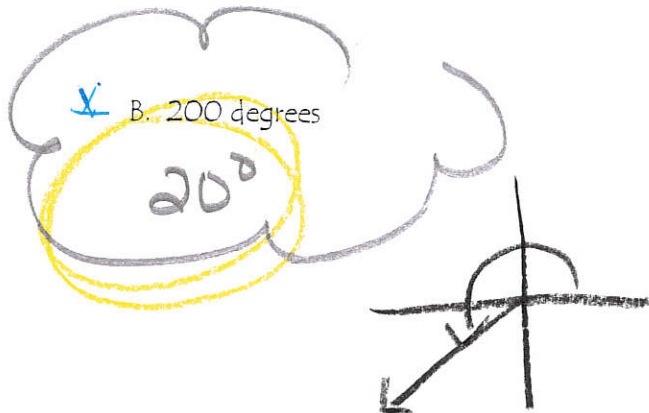
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6. Find the reference angle to the angle given. Sketch the angle first to help you! Recall that the reference angle is the angle that is formed by the terminal side of the given angle and the X AXIS!!

A. 120 degrees



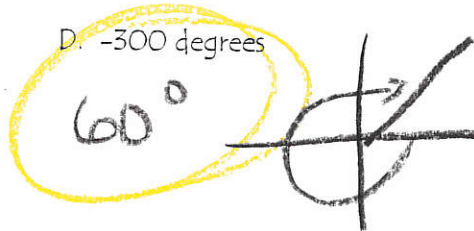
~~B. 200 degrees~~



C. -100 degrees



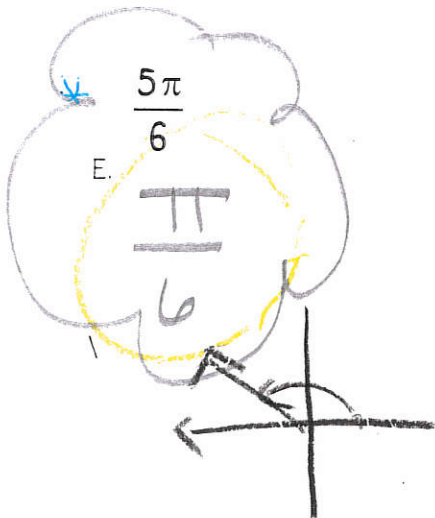
~~D. -300 degrees~~



E.

$$\frac{5\pi}{6}$$

$$\frac{\pi}{6}$$



~~F.~~

$$\frac{13\pi}{6}$$

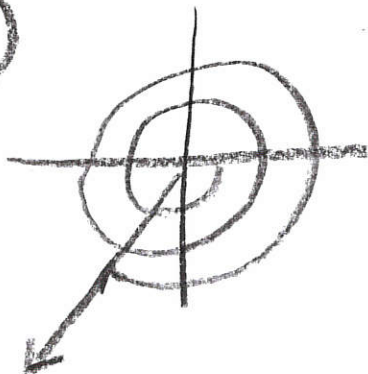
$$= \frac{12\pi}{6} + \frac{\pi}{6}$$

$$\frac{\pi}{6}$$



$$G. \frac{-14\pi}{3} = -\frac{6\pi}{3} + -\frac{6\pi}{3} + -\frac{2\pi}{3}$$

$$\frac{\pi}{3}$$



$$H. \frac{-4\pi}{6} = -\frac{2\pi}{3}$$

