

## Chapter 4 Hand-in Assignment – Trigonometry

**Name:** \_\_\_\_\_

**Unless a question says differently, round to 2 decimal places when rounding is necessary.**

1. Convert each angle to degree measure.

a)  $\frac{7\pi}{8}$

b) 4.2 radians

2. Convert each angle to radian measure, in simplest *exact form*. (Answers will include  $\pi$ )

a)  $-200^\circ$

b)  $1040^\circ$

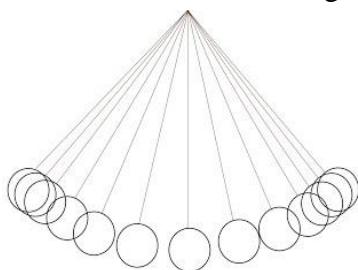
3. Convert each angle to radian measure, in *approximate form*.

a)  $258^\circ$

b)  $-95^\circ$

4. Find the arc length subtended by an angle measuring  $81^\circ$  in a circle with radius 18 cm.

5. Suppose that a clock's pendulum has a length of 15 cm, and it swings back and forth, making an arc of 22 cm. What angle does the pendulum pass through in one swing, in *degree measure*?

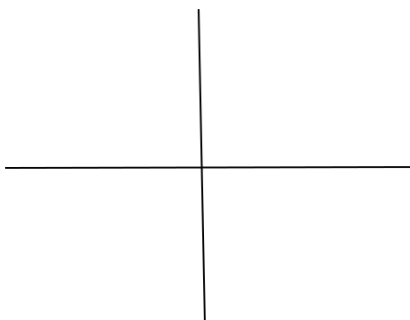


6. For each angle below:

- graph it in standard position
- find the measure of one angle that is *coterminal* to the given angle
- find the *reference angle* to the given angle

a)  $\frac{5\pi}{8}$

(Give coterminal & reference angles  
in exact radian measure)

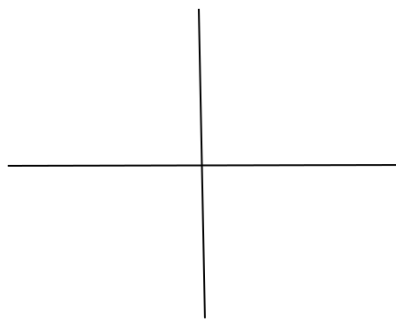


Coterminal:

Reference:

b)  $-220^\circ$

(Give coterminal & reference angles  
in degree measure)



Coterminal:

Reference:

7. Find the  $x$ -coordinate of all points on the unit circle that have a  $y$ -coordinate of  $\frac{2}{5}$ .

Give answers in fractional form, not decimal form.

8. Find each value, correct to **three decimal places**. (Use a calculator!)

a)  $\csc 185^\circ$

b)  $\cot\left(\frac{3\pi}{7}\right)$

9. Find the EXACT  $(x, y)$  coordinates where the terminal arm of each angle listed below intersects the unit circle:

a)  $\frac{5\pi}{3}$

b)  $-\frac{7\pi}{6}$

c)  $-\frac{3\pi}{4}$

10. Find the angle measure, in BOTH radians and degrees, that corresponds with each point on the unit circle:

a)  $\left(-\frac{\sqrt{3}}{2}, -\frac{1}{2}\right)$

b)  $\left(-\frac{1}{2}, \frac{\sqrt{3}}{2}\right)$

c)  $\left(\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2}\right)$

11. Suppose the terminal arm of a standard position angle  $\theta$  passes through the point  $(3, -8)$ . Find the exact value of all six trigonometric ratios for angle  $\theta$ , in fractional form.

12. Find the **exact value** of all six trigonometric ratios for each angle  $\theta$ . Give answers in simple form (no complex fractions).

$$\sin \theta =$$

$$\cos \theta =$$

$$\tan \theta =$$

a)  $\frac{3\pi}{4}$

$$\csc \theta =$$

$$\sec \theta =$$

$$\cot \theta =$$

$$\sin \theta = \quad \cos \theta = \quad \tan \theta =$$

b)  $-\pi$ 

$$\csc \theta = \quad \sec \theta = \quad \cot \theta =$$

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$$\sin \theta = \quad \cos \theta = \quad \tan \theta =$$

c)  $330^\circ$ 

$$\csc \theta = \quad \sec \theta = \quad \cot \theta =$$

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14. Solve these trigonometric equations algebraically.

- Give answers in EXACT form when possible.
- If domain is in radians, give answers in radian measure

a)  $\cos \theta = \frac{\sqrt{3}}{2}, 0 \leq \theta < 2\pi$

b)  $\cos \theta = -0.813, \text{ for } 0 \leq \theta < 2\pi$

c)  $\sin \theta = 0.247$ , for  $0^\circ \leq \theta \leq 720^\circ$

d)  $2 \cos \theta + 1 = -1$ ,  $0 \leq \theta < 2\pi$

e)  $4 \sin^2 \theta - 3 = 0$ ,  $0^\circ \leq \theta < 360^\circ$

$$\text{f) } \sqrt{2} \cos^2 \theta - \cos \theta = 0, 0 \leq \theta < 2\pi$$

$$\text{g) } 2 \tan^2 \theta - 7 \tan \theta + 3 = 0, 0^\circ \leq \theta < 720^\circ$$