

1) Write each measure in radians. Express your answer in terms of π .

a. -90° $-\frac{\pi}{2}$

d. 300° $\frac{5\pi}{3}$

g. -80° $-\frac{4\pi}{9}$

b. -150° $-\frac{5\pi}{6}$

e. -360° -2π

h. 110° $\frac{11\pi}{18}$

c. 270° $\frac{3\pi}{2}$

f. 40° $\frac{2\pi}{9}$

i. 200° $\frac{10\pi}{9}$

2) Write each measure in degrees.

a. π 180°

d. $\frac{-3\pi}{2}$ -270°

g. $\frac{\pi}{2}$ 90°

b. $\frac{\pi}{9}$ 20°

e. $\frac{-7\pi}{4}$ -315°

h. $\frac{7\pi}{6}$ 210°

c. $\frac{3\pi}{4}$ 135°

f. $\frac{7\pi}{3}$ 420°

i. 2π 360°

3) Shana is about to perform a relay handoff on a circular track that has a radius of 8 meters and her track partner Katie is standing 135° away from her. How many meters does Shana need to run to pass the baton to Katie?

$S = r\theta$
 $135^\circ \times \frac{\pi}{180^\circ} = \frac{3\pi}{4}$
 $S = 8\left(\frac{3\pi}{4}\right) = 6\pi \text{ m}$

4) A neighborhood carnival has a Ferris wheel that has a radius is 30feet. An entire rotation of the Ferris wheel takes 12 minutes. How many feet do you travel in 2 minutes?

$C = 2\pi(30) = 60\pi \text{ FT}$
 $\frac{2}{12} \cdot 60\pi = 10\pi \text{ FT}$

5) Sketch each angle in standard position.

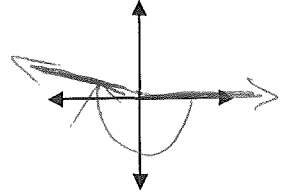
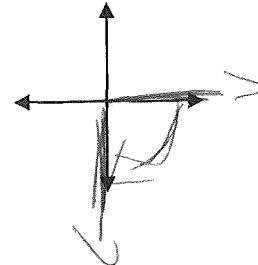
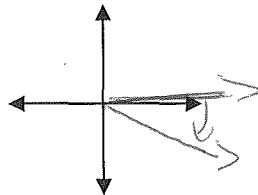
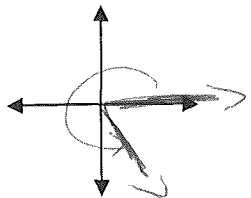
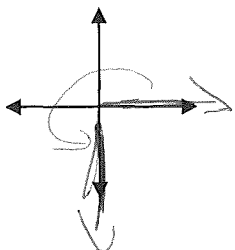
a. 270°

b. 330°

c. -30°

d. -90°

e. -190°



6) Find the measure of an angle between 0° and 360° coterminal with each given angle.

a. -100°

b. -145°

c. 372°

d. 482°

e. 860°

260°

215°

12°

122°

140°

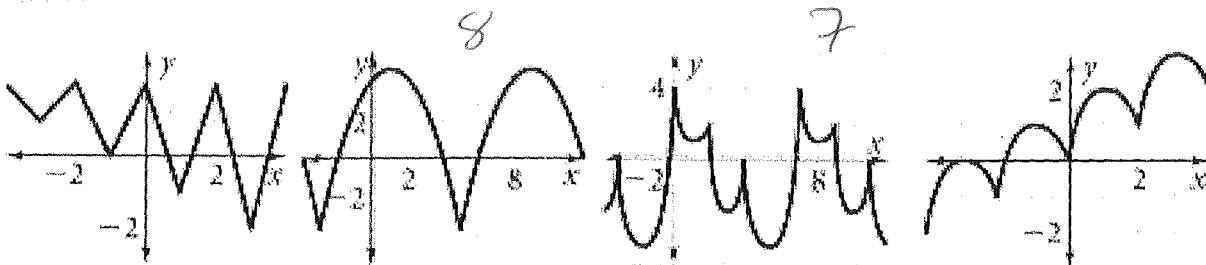
7) Determine if the following function is or is not period. If it is periodic, then find the period.

a. Yes/No

b. Yes/No

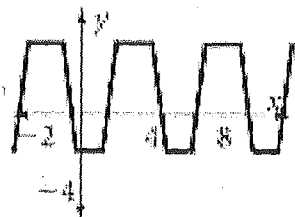
c. Yes/No

d. Yes/No



8) Identify one cycle in two different ways. Then determine the period and amplitude of the function.

a.



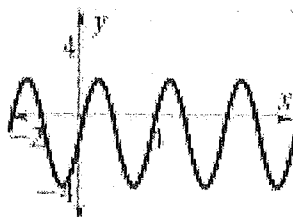
$[0, 5]$ $[-2, 3]$

Cycle: _____

Period: 5

Amplitude: 3

b.



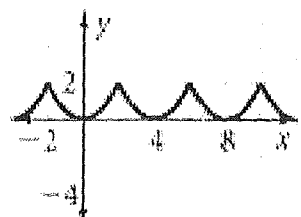
$[0, 4]$ $[5, 9]$

Cycle: _____

Period: 4

Amplitude: 3

c.



$[0, 4]$ $[8, 12]$

Cycle: _____

Period: 4

Amplitude: 1

9) Find the exact values of the cosine and sine of each angle. (Try to do these problems without using your unit circle.)

a. $\sin \frac{-\pi}{4} = -\frac{\sqrt{2}}{2}$

g. $\sin (-120^\circ) = -\frac{\sqrt{3}}{2}$

m. $\sin \frac{3\pi}{2} = -1$

b. $\cos \frac{2\pi}{3} = -\frac{1}{2}$

h. $\cos (-300^\circ) = \frac{1}{2}$

n. $\cos \frac{2\pi}{3} = -\frac{1}{2}$

c. $\sin 180^\circ = 0$

i. $\sin \frac{-5\pi}{6} = -\frac{1}{2}$

o. $\sin 225^\circ = -\frac{\sqrt{2}}{2}$

d. $\cos 300^\circ = \frac{1}{2}$

j. $\cos 5\pi = -1$

p. $\cos 240^\circ = -\frac{1}{2}$

e. $\sin \frac{7\pi}{4} = -\frac{\sqrt{2}}{2}$

k. $\sin 660^\circ = \frac{\sqrt{3}}{2}$

q. $\sin \frac{-7\pi}{4} = \frac{\sqrt{2}}{2}$

f. $\cos \frac{7\pi}{3} = \frac{1}{2}$

l. $\cos -450^\circ = 0$

r. $\cos \frac{13\pi}{6} = \frac{\sqrt{3}}{2}$