

Trigonometry/Precalculus
Chapter 6.1 – 6.5 Pretest
Mr. Roy

Name Key
Date _____
Period _____

I. Convert the given angle value into radians/degrees. Express answers in exact fraction form. Do not express as a decimal value.

1. $\frac{1}{4}\pi^R = 45^\circ$

2. $-695^\circ = -\frac{139\pi}{36}$

II. Find the length of the arc given the measure of the central angle and a radius that equals 5.0 m.

3. $\theta = \frac{3}{2}\pi$ $s = 23.6$ m

4. $\theta = 150^\circ$ $s = 6.6$ m

$s = r\theta$

$= \frac{5\pi}{6}$
 $s = r\theta$

III. Determine the angular displacement, angular velocity, and the linear velocity. Round each answer to the nearest tenth. The radius length is 5.0 m.

5. 2.75 revolutions in 20.0 seconds

$s = 86.4$ m $\omega = 0.9$ rad/sec $v = 4.3$ m/s

$\theta = (2.75)(2\pi) = 5.5\pi^R$

$\omega = \frac{\theta}{t} = \frac{5.5\pi}{20}$

$v = r\omega$

$s = r\theta =$

$\omega = 0.86 = 0.9$ rad/sec

IV. Determine the characteristics of amplitude, period, horizontal phase shift, critical points and vertical phase shift.

6. $y = 2\cos(\frac{1}{2}\theta + \frac{\pi}{4}) + 2$ amplitude = 2, period = 4π , phase shift = $-\frac{\pi}{2}$, vertical shift = 2 up
critical points = _____

$-\frac{\pi}{4} \times \frac{1}{2} = -\frac{\pi}{2}$

$(-\frac{\pi}{2}, 4)$	$(\frac{5\pi}{2}, 2)$
$(\frac{\pi}{2}, 2)$	$(\frac{7\pi}{2}, 4)$
$(\frac{3\pi}{2}, 0)$	

7. $y = \frac{1}{2}\cos(2\theta - \frac{\pi}{2}) - 3$ amplitude = $\frac{1}{2}$, period = π , phase shift = $\frac{\pi}{4}$, vertical shift = 3 down

critical points = _____

$(\frac{\pi}{4}, -2\frac{1}{2})$	$(\frac{3\pi}{4}, -3\frac{1}{2})$
$(\frac{\pi}{2}, -3)$	$(\pi, -3)$
	$(\frac{5\pi}{4}, -2\frac{1}{2})$

0.P + PS = $\frac{\pi}{4}$
 $\frac{1}{4}.P + PS = \frac{\pi}{2}$
 $\frac{1}{2}.P + PS = \frac{3\pi}{4}$
 $\frac{3}{4}.P + PS = \pi$
1.P + PS = $\frac{5\pi}{4}$

8. $y = \cos(\theta + \frac{\pi}{4}) + 1$ amplitude = 1, period = 2π , phase shift = $-\frac{\pi}{4}$, vertical shift = 1 up

critical points = _____

$(-\frac{\pi}{4}, 2)$	$(\pi, 1)$
$(\frac{\pi}{4}, 1)$	$(\frac{5\pi}{4}, 2)$
$(\frac{3\pi}{4}, 0)$	

period = $\frac{2\pi}{1} = 2\pi$
phase shift = $\frac{c}{h} = \frac{-\frac{\pi}{4}}{1} = -\frac{\pi}{4}$

V. Determine the amplitude, period, horizontal phase shift, and vertical phase shift. Graph the function

9. $y = 2\cos(\frac{3}{4}\theta + \pi) - 1$

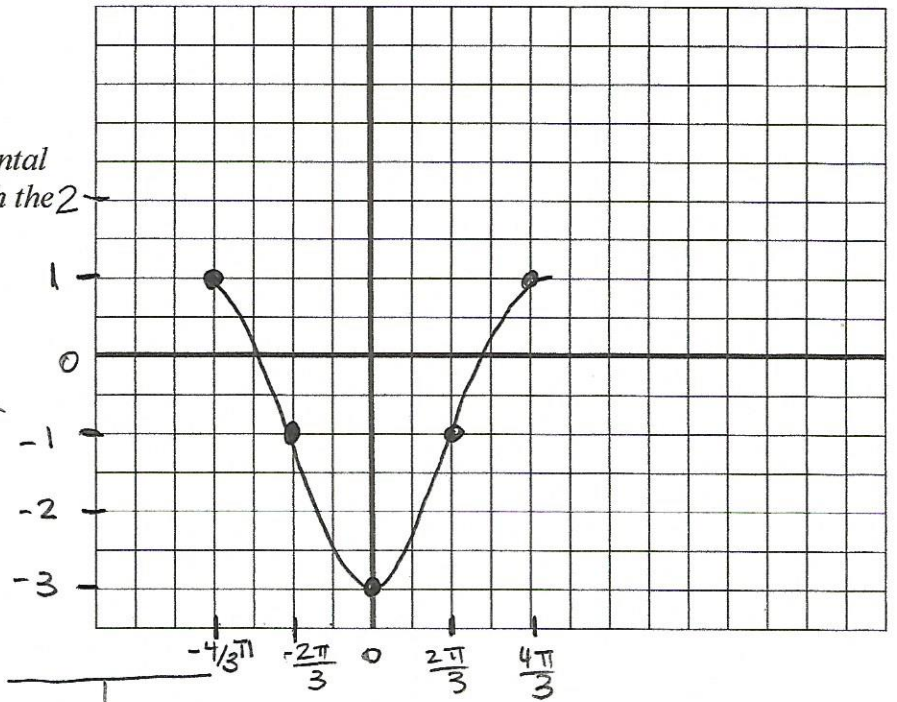
amplitude = 2 period = $\frac{8\pi}{3}$

horizontal shift = $-\frac{4\pi}{3}$

vertical shift = 1 down

$P = \frac{2\pi}{3/4} = 2\pi \cdot \frac{4}{3} = \frac{8\pi}{3}$

$P.S = \frac{-\pi}{3/4} = -\frac{4\pi}{3}$



$-\frac{4\pi}{3}$	1
$-\frac{2\pi}{3}$	-1
0	-3
$\frac{2\pi}{3}$	-1
$\frac{4\pi}{3}$	1

10. $y = -\frac{1}{2}\sin(\frac{1}{2}\theta - \pi) + 1$

amplitude = $-\frac{1}{2}$ period = 4π

horizontal shift = 2π right

vertical shift = 1 up

$P = \frac{2\pi}{1/2} = 4\pi$

$P.S = \frac{\pi}{1/2} = 2\pi$

2π	1
3π	$\frac{1}{2}$
4π	1
5π	$\frac{1}{2}$
6π	1

