Name _____ Sec 3
Period _____ WKS 6.10 Trig Graphs

Determine the amplitude and period of each function. (Write Period in both Radian and Degree)

1. $y = \sin 4x$ 4x's faster, 4 spins in 2π; amp: 1; period: $\frac{2\pi}{4} = \frac{\pi}{2}$ each; 90°

2. $y = \cos 5x$ amp: 1; period: $\frac{2\pi}{5}$ each; $\frac{2\pi}{5} = \frac{180}{5} = 72°$

3. $y = 2 \sin x$

4. $y = -4 \sin 3x$

5. $y = 2 \sin(-4x)$

6. $y = 3 \sin \frac{2}{3}x$ amp 3; $\frac{2\pi}{\frac{2}{3}} = 3\pi$ ↓ 540°

Give the amplitude and period of each function graphed below. Then write an equation of each graph.

7. amp 3; period π; $y = 3\sin 2x$; $\frac{2\pi}{\pi} = 2$ double speed; how many turns in 2π? 2.

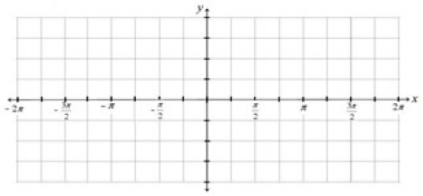
8. amp 4; period: 2π; $y = 4\cos 1x$; $\frac{2\pi}{2\pi} = 1$

9. amp 2; period 4π; $\frac{2\pi}{4\pi} = \frac{1}{2}$; $y = 2\sin(\frac{1}{2}x)$

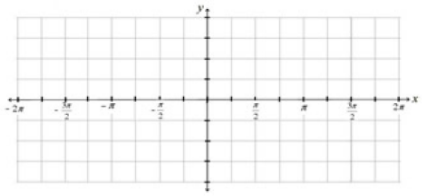
10. $-5\cos 1x$; $\frac{2\pi}{2\pi} = 1$

Sketch the graph of the function over the interval $-2\pi \le x \le 2\pi$.

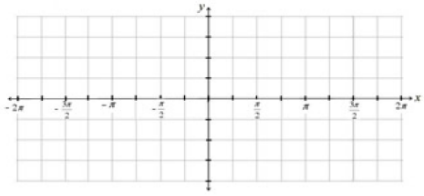
11. $y = 4 \sin x$



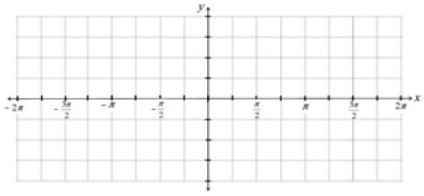
12. $y = 2 \cos x$



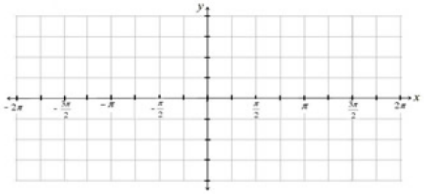
13. $y = 2 \sin 2x$



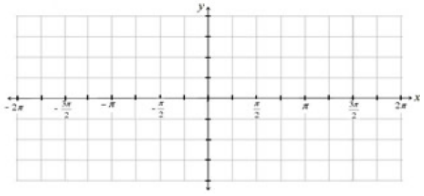
14. $y = -\cos 2x$



15. $y = 3 \cos \frac{1}{2}x$



16. $y = -2 \sin (4x)$



Determine the amplitude, period, phase shift, and vertical shift for each.

17. $y = 2 + 3\sin\left(4x + \frac{\pi}{2}\right)$

$4\left(x + \frac{\pi}{8}\right)$ left $\frac{\pi}{8}$

left/right

amp: 3
period: $\frac{2\pi}{4} = \frac{\pi}{2}$
left $\pi/8$
V.S.: up 2

18. $y = 2\cos(x - \pi)$

19. $y = \frac{1}{2}\cos(2x - 4)$

$2(x - 2)$

20. $y = 3 + 4\sin(x - \pi)$

amp: 4
V.S.: up 3
period: 2π
right π

$\frac{2\pi}{1} = 2\pi$

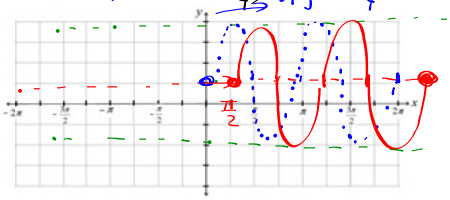
$S = \frac{2\pi}{P}$ or $P = \frac{2\pi}{S}$

Sketch the graph of each function for **ONE PERIOD**.

21. $y = 3\sin\left(2x - \frac{\pi}{2}\right) + 1$

$\frac{\pi}{2} \div 2$

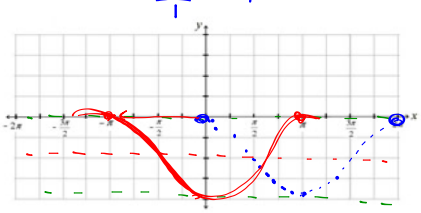
$\sin 2\left(x - \frac{\pi}{4}\right)$ right $\frac{\pi}{4}$



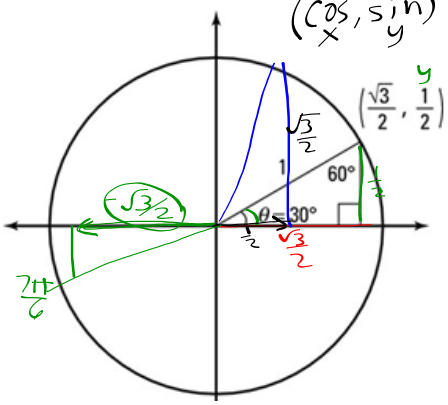
22. $y = 2\cos(x + \pi) - 2$

left π

$\frac{2\pi}{1} = 2\pi$



Use the given graphic below to match questions 23-26:
(some may be used more than once or not at all)



23. Sin30= $\frac{1}{2}$ a.

24. Cos60 = $\frac{1}{2}$ a.

25. Sin$\frac{5\pi}{6}$= _____

26. Cos$\frac{7\pi}{6}$= $-\frac{\sqrt{3}}{2}$ d.

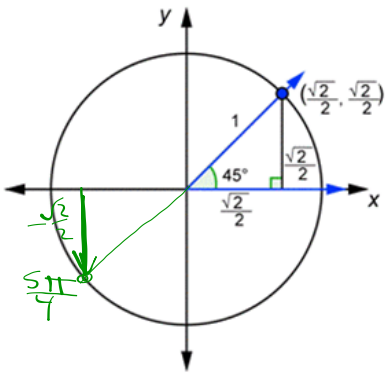
a. $\frac{1}{2}$

b. $\frac{-1}{2}$

c. $\frac{\sqrt{3}}{2}$

d. $-\frac{\sqrt{3}}{2}$

Use the given graphic below to match questions 27-30: (some may be used more than once or not at all)



27. Sin45=_____

28. Cos135 =_____

29. Sin$\frac{5\pi}{4}$= $-\frac{\sqrt{2}}{2}$ d.

30. Cos$\frac{7\pi}{4}$=_____

a. 0

b. 1

c. $\frac{\sqrt{2}}{2}$

d. $-\frac{\sqrt{2}}{2}$

31. Which equation below shows the speed doubling?
a. y= 2sinx b. y= sin2x c. y= sinx +2 d. y= sin(x-2)

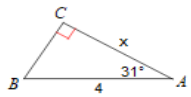
32. Which equation below shows the radius doubling?
a. y= 2sinx b. y= sin2x c. y= sinx +2 d. y= sin(x-2)

33. Which sine equation has an amplitude = 5, up 3, rotating at 15 degrees per second.
a. y= 3sin(15x) +5 b. y= 5sin(3x)+15 c. y= 5sin(15x)+3 d. y= 5sin(30x)+3

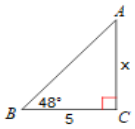
6.10 WKS... continued

Find the measure of each side indicated. Round to the nearest tenth.

34)



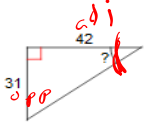
35)



CALC in degree.

Find the measure of the indicated angle to the nearest degree.

36)

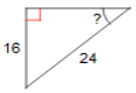


adj

$\tan^{-1}\left(\frac{31}{42}\right) =$

36°

37)

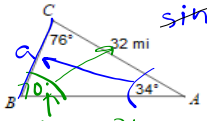


Use LAW OF SINES to find the indicated side or angle. Round to the nearest tenth.

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

* find flip

38) Find BC

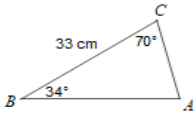


$\frac{a}{\sin 34} = \left(\frac{32}{\sin 70}\right)\sin 34$

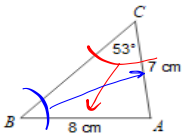
$a = 19.0$

$180 - 34 - 76 = 70$

39) Find AB



40) Find $m\angle B$



$\frac{\sin B}{7} = \left(\frac{\sin 53}{8}\right)7$

$\sin B = (.698)$

$\sin^{-1}$

$B = 44°$

41) Find $m\angle B$