Pre-Calculus – Unit 10

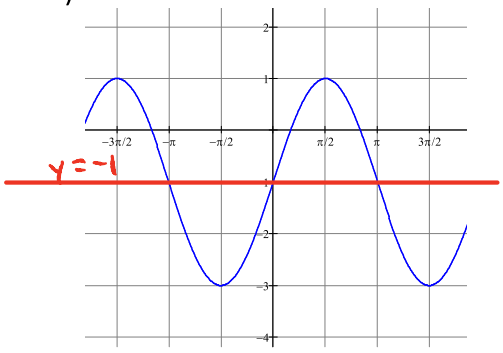
Name: _____ Date:_____ Period: _____

Unit 10 REVIEW – Graphing Trig Functions

Pre-Calculus

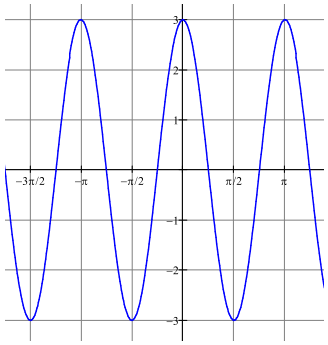
For 1-3, write the given function for each graph. Use a phase shift, not a negative coefficient.

1)



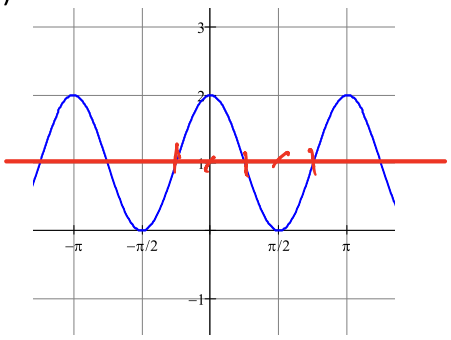
SINE: $y = 2\sin\theta - 1$

2)



COSINE: $y = 3\cos 2\theta$

3)



SINE: $y = \sin 2(\theta + \frac{\pi}{4}) + 1$

4) Write the equation of a **sine** curve with the following transformations:

- One full period occurs 6 times between 0 and 2π.
- Stretch vertically 2.

$y =$ $2\sin 6\theta$

For 5-6, state the amplitude, period, phase shift, and vertical shift.

5) $y = 3\cos(5x - \pi)$

$y = 3\cos 5(x - \frac{\pi}{5})$

amp = $|3| = 3$ period = $\frac{2\pi}{5}$

p.s. = $\frac{\pi}{5}$ v.s. = 0

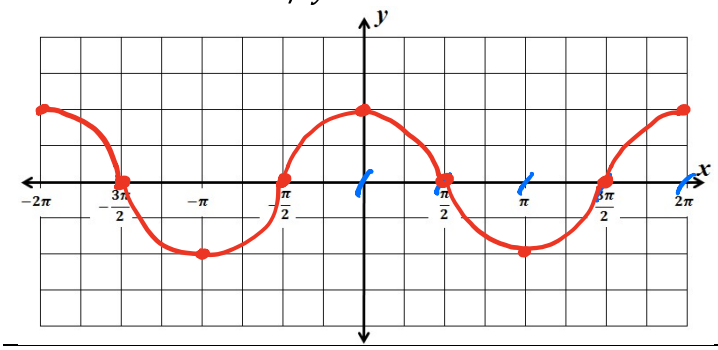
6) $y = \frac{1}{2}\sin 4x - 2$

amp = $|\frac{1}{2}| = \frac{1}{2}$ period = $\frac{\pi}{2}$

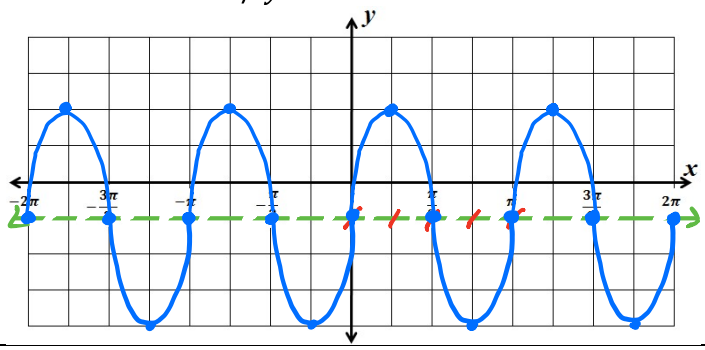
p.s. = 0 v.s. = -2

For 7-14, graph the function. Use the entire grid left to right.

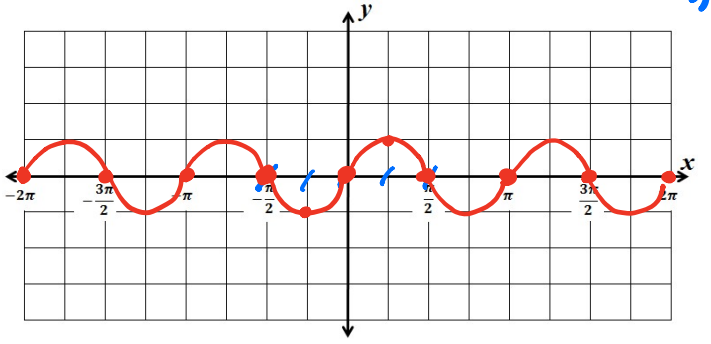
7) $y = 2\cos x$



8) $y = 3\sin 2x - 1$

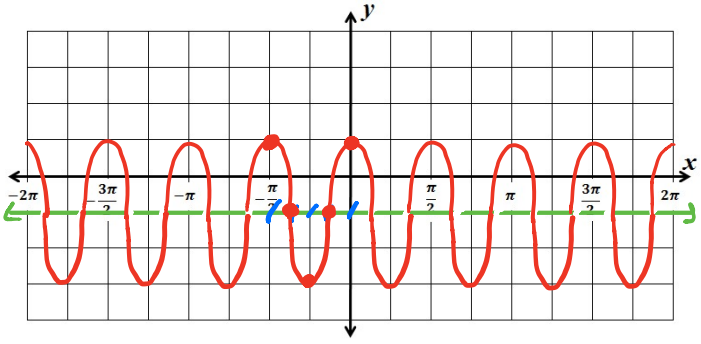


9) $y = -\sin(2x + \pi) = -\sin 2(x + \frac{\pi}{2})$

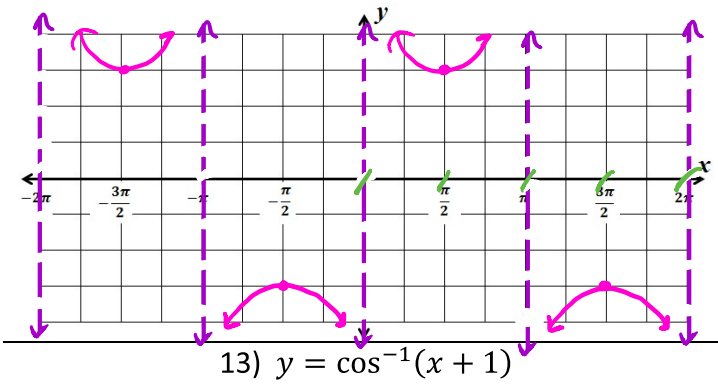


$y = 2\cos 4(x - \frac{\pi}{2}) - 1$

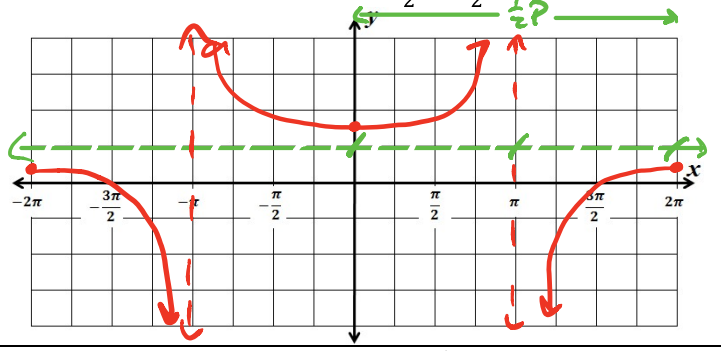
10) $y = 2\cos(4x - 2\pi) - 1$



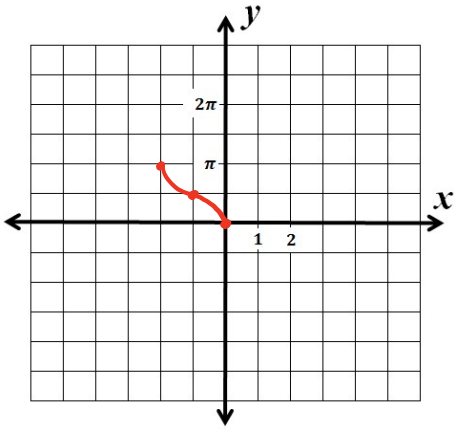
11) $y = 3\csc x$



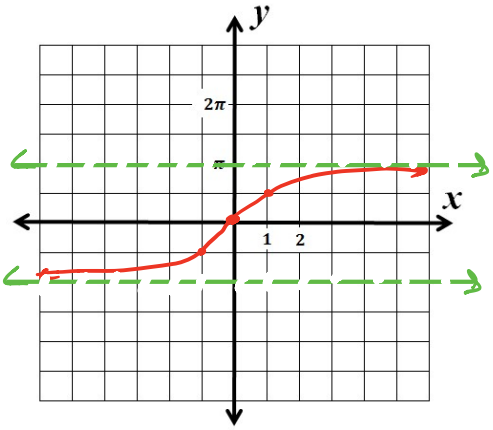
12) $y = 1 + \frac{1}{2}\sec\frac{x}{2}$



13) $y = \cos^{-1}(x+1)$

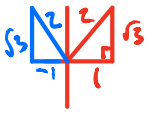


14) $y = 2\tan^{-1} x$

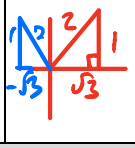


For 16 – 18, find the exact value of the expression.

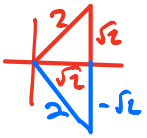
16) $\cos\left(\arcsin\left(\frac{\sqrt{3}}{2}\right)\right)$ $= \pm\frac{1}{2}$



17) $\tan\left(\arcsin\left(\frac{1}{2}\right)\right)$ $= \pm\frac{1}{\sqrt{3}} = \pm\frac{\sqrt{3}}{3}$



18) $\tan\left(\arccos\left(\frac{\sqrt{2}}{2}\right)\right)$ $= \pm\frac{\sqrt{2}}{\sqrt{2}} = \pm 1$



For 19 – 21, find the approximate value by using a calculator. Use degree mode.

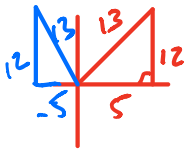
19) $\cot^{-1}\left(\frac{13}{10}\right)$ $= \tan^{-1}\left(\frac{10}{13}\right)$
$= 37.569^\circ$

20) $\csc(68^\circ)$ $= \frac{1}{\sin 68^\circ}$
≈ 1.079

21) $\sec^{-1}(6)$ $= \cos^{-1}\left(\frac{1}{6}\right)$
$= 80.406^\circ$

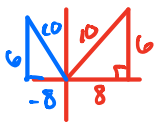
For 22 – 24, use a reference triangle to find the exact value of the expression. Draw a triangle!

22) $\tan\left(\sin^{-1}\frac{12}{13}\right)$ $= \pm\frac{12}{5}$



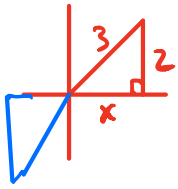
Pythag Triple
5-12-13

23) $\sec\left(\operatorname{arccsc}\frac{10}{6}\right)$ $= \pm\frac{10}{8} = \pm\frac{5}{4}$



Pythag Triple
6-8-10

24) $\cot\left(\csc^{-1}\frac{3}{2}\right)$ $= \pm\frac{\sqrt{5}}{2}$



$x^2 + y^2 = r^2$
$x^2 + (2)^2 = (3)^2$
$x^2 + 4 = 9$
$x^2 = 5$
$x = \pm\sqrt{5}$