

PRE-CALCULUS WORKSHEET #4
GRAPHS OF SINE AND COSINE

Do all work on your own paper.

I. State the period, amplitude, and phase shift.

1) $f(x) = 2 \sin(2x - \pi)$

2) $g(x) = -3 \cos\left(\frac{x}{4} + 2\pi\right)$

3) $h(x) = \frac{1}{5} \sin 2\pi(x - 3)$

II. Given the following functions, find:

- a. Period
- b. Amplitude
- c. Phase Shift
- d. Domain
- e. Range
- f. Graph one cycle (one period)**

4) $f(x) = -3 \sin(x + \pi)$

5) $f(x) = \frac{1}{2} \cos \frac{1}{2}(x - 2\pi)$

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

7) $y = -2 - \cos\left(3x - \frac{3\pi}{2}\right)$

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

III. Evaluate: NO CALCULATOR!!!

9) $\sin\left(\frac{-16\pi}{3}\right)$

10) $\cot\frac{3\pi}{2}$

11) $\sec(-240^\circ)$

12) $\tan\left(\frac{-5\pi}{6}\right)$

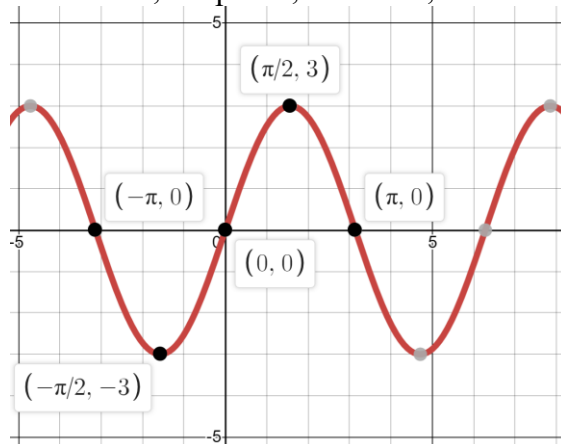
13) $\cos(-\pi)$

14) $\csc(0^\circ)$

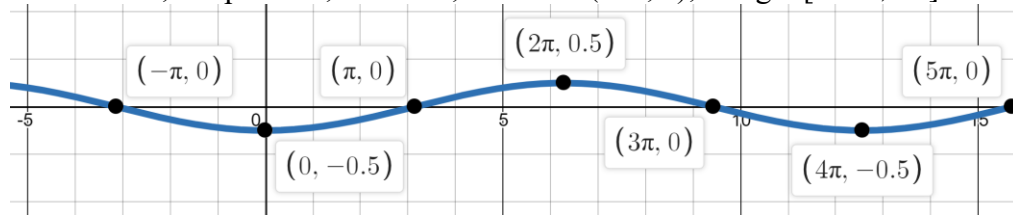
15) $\sin\frac{4\pi}{3}\tan\left(\frac{\pi}{6}\right)\cos^2(\pi)$

ANSWERS:

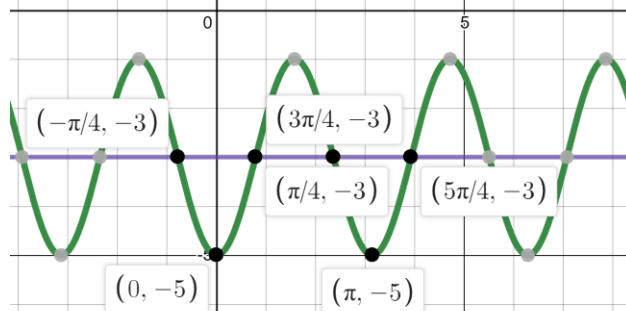
- 1) Period = π ; Amp = 2 ; PS = $\pi/2$
- 2) Period = 8π ; Amp = 3 ; PS = -8π
- 3) Period = 1 ; Amp = 1/5 ; PS = 3
- 4) Period = 2π ; Amp = 3 ; PS = $-\pi$; Domain: $(-\infty, \infty)$; Range: $[-3, 3]$



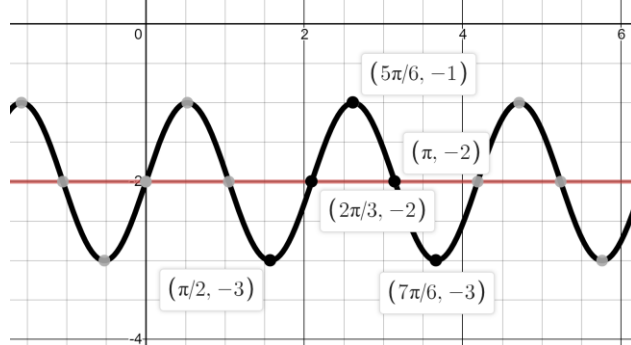
5) Period = 4π ; Amp = $1/2$; PS = 2π ; Domain: $(-\infty, \infty)$; Range: $[-1/2, 1/2]$



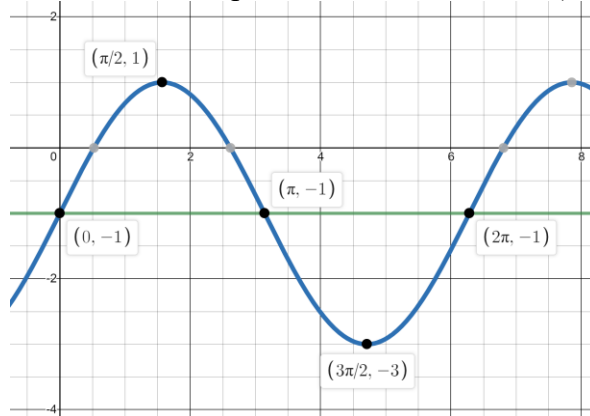
6) Period = π ; Amp = 2 ; PS = $\pi/4$; Domain: $(-\infty, \infty)$; Range: $[-5, -1]$



7) Period = $2\pi/3$; Amp = 1 ; PS = $\pi/2$; Domain: $(-\infty, \infty)$; Range: $[-3, -1]$



8) Period = 2π ; Amp = 2 ; PS = 0 ; Domain: $(-\infty, \infty)$; Range: $[-3, 1]$



9) $\frac{\sqrt{3}}{2}$

10) 0

11) -2

12) $\frac{\sqrt{3}}{3}$

13) -1

14) Undefined

15) $-\frac{1}{2}$