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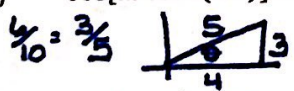
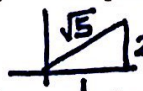
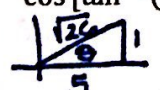
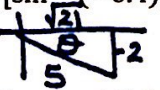
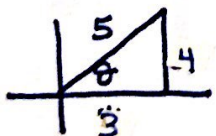
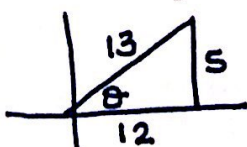
Name: Inverse trig func.

Pre-Calculus  
Summary of Inverse Functions

Finding the exact value of a single inverse functions.

- 1)  $\cos^{-1}(1) = 0$
- 2)  $\cos^{-1}(-1) = \pi$
- 3)  $\tan^{-1}(1) = \pi/4$
- 4)  $\arctan(\frac{\sqrt{3}}{3}) = \pi/6$
- 5)  $\arcsin(\frac{-\sqrt{3}}{2}) = -\pi/3$
- 6)  $\arccos(\frac{-\sqrt{2}}{2}) = 3\pi/4$
- 7)  $\cos^{-1}(\frac{-1}{2}) = 2\pi/3$
- 8)  $\sin^{-1}(-2) = \text{DNE}$
- 9)  $\tan^{-1}(0) = 0$
- 10)  $\arctan(-1) = -\pi/4$
- 11)  $\arccos(\frac{-\sqrt{3}}{2}) = \frac{5\pi}{6}$
- 12)  $\arccos(\sqrt{3}) = \text{DNE}$
- 13)  $\arcsin(0) = 0$
- 14)  $\arcsin(\frac{1}{2}) = \pi/6$
- 15)  $\arccos(\frac{1}{2}) = \pi/3$
- 16)  $\arctan(-\sqrt{3}) = -\pi/3$
- 17)  $\arccos(0) = \pi/2$
- 18)  $\arctan(-\frac{\sqrt{3}}{3}) = -\pi/6$

Finding exact values Double Problems: \*hint - draw triangle if necessary

- 19)  $\sin^{-1}[\sin(\frac{\pi}{3})] = \pi/3$
- 20)  $\arccos[\cos(\frac{4\pi}{5})] = 4\pi/5$
- 21)  $\sin^{-1}[\tan^{-1}(\frac{3\pi}{4})] = -\pi/2$
- 22)  $\cos[\arcsin(-\frac{1}{2})] = \sqrt{3}/2$
- 23)  $\cos[\sin^{-1}(\frac{1}{2})] = \sqrt{3}/2$
- 24)  $\sin[\tan^{-1}(1)] = \sqrt{2}/2$
- 25)  $\cos[\arcsin(0.6)] = 4/5$   

- 26)  $\sin[\arctan(2)] = \frac{2}{\sqrt{5}} = \frac{2\sqrt{5}}{5}$   

- 27)  $\cos[\tan^{-1}(0.2)] = \frac{5}{\sqrt{26}} = \frac{5\sqrt{26}}{26}$   

- 28)  $\tan[\sin^{-1}(-0.4)] = \frac{-2\sqrt{21}}{21}$   

- 29)  $\sin[\cos^{-1}(\frac{3}{5})] = 4/5$   

- 30)  $\sin[\arctan(\frac{5}{12})] = 5/13$   


## Transformations for Sine and Cosine—The First

Find the period and amplitude, vertical and horizontal shifts. Then, graph each of the following on a separate sheet of graph paper.

1.  $y = 3\sin(x)$

Amp  
Pd  $2\pi$

4.  $y = \sin(2\theta)$

Amp 1  
Pd  $\pi$

7.  $y = -\sin 3(\theta)$

Amp 1  
Pd  $2\pi/3$

10.  $y = \frac{1}{2}\sin\frac{\pi}{3}(\theta)$

Amp  $1/2$   
Pd = 6

13.  $y = -\cos(4x)$

Amp 1  
Pd  $\pi/2$

16.  $y = 2\sin(\theta) + 1$

Amp 2  
Pd  $2\pi$   
1 up

19.  $y = 3\cos(x - \frac{\pi}{2})$

Amp 3  
Pd  $2\pi$   
right  $\pi/2$

22.  $y = 3\sin(4\theta + \frac{\pi}{2}) + 1$

Amp 3 left  $\pi/8$   
Pd  $\pi/2$   
Up 1

$4\theta = \pi/2$

$4\theta = -\pi/2$

$\theta = -\pi/8$

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

Amp  $1/2$   
Pd  $2\pi$

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

Amp 1  
Pd  $6\pi$

8.  $y = 4\cos(\frac{\theta}{4})$

Amp 4  
Pd:  $8\pi$

11.  $y = 10\cos 5(x)$

Amp 10  
Pd  $2\pi/5$

14.  $y = \frac{3}{2}\cos(2x)$

Amp  $3/2$   
Pd  $\pi$

17.  $y = \sin(\frac{x}{2}) - 2$

Amp 1  
Pd:  $4\pi$   
down 2

20.  $y = \sin 3(\theta + \frac{\pi}{3})$

Amp 1  
Pd  $2\pi/3$   
left  $\pi/3$

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

Amp  $1/2$   
Pd  $6\pi$   
left  $\pi/2$   
down 2

3.  $y = 4\cos(\theta)$

Amp 4  
Pd  $2\pi$

6.  $y = \cos 2\pi(x)$

Amp 1  
Pd 1

9.  $y = -3\cos(\pi x)$

Amp 3  
Pd: 2

12.  $y = -2\sin(\frac{\pi\theta}{4})$

Amp: 2  
Pd: 8

15.  $y = 6\sin\frac{1}{2}(x)$

Amp 6  
Pd:  $4\pi$

18.  $y = -3\cos 4(\theta) - 5$

Amp 3  
Pd  $\pi/2$   
down 5

21.  $y = -\cos\frac{\pi}{2}(x + 2)$

Amp 1  
Pd 4  
left 2

24.  $y = -\sin(\frac{\pi\theta}{3} - \frac{\pi}{3}) - 2$

Amp 1  
Pd 6  
right 1  
down 2

$\frac{\pi}{3}\theta = \frac{\pi}{3}$



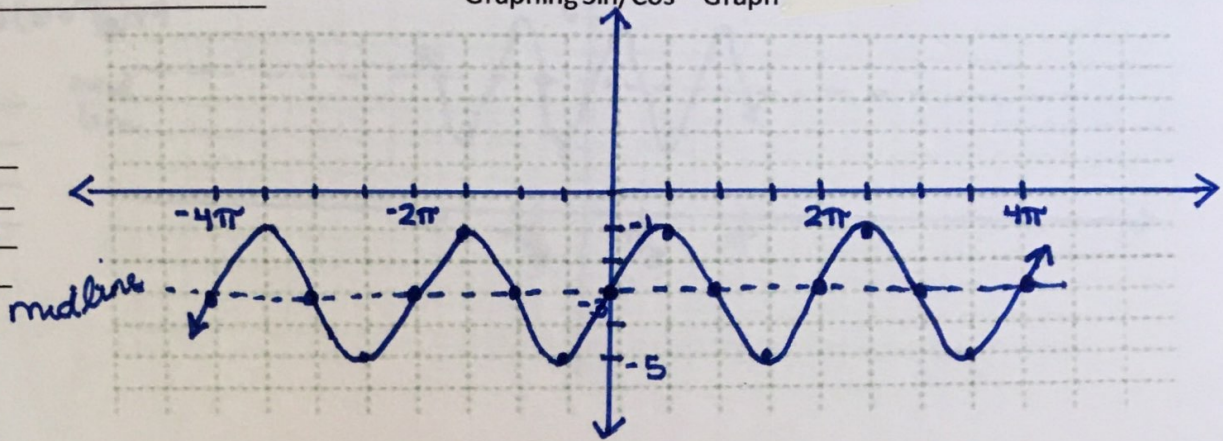
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Name: \_\_\_\_\_

### Graphing Sin/Cos - Graph

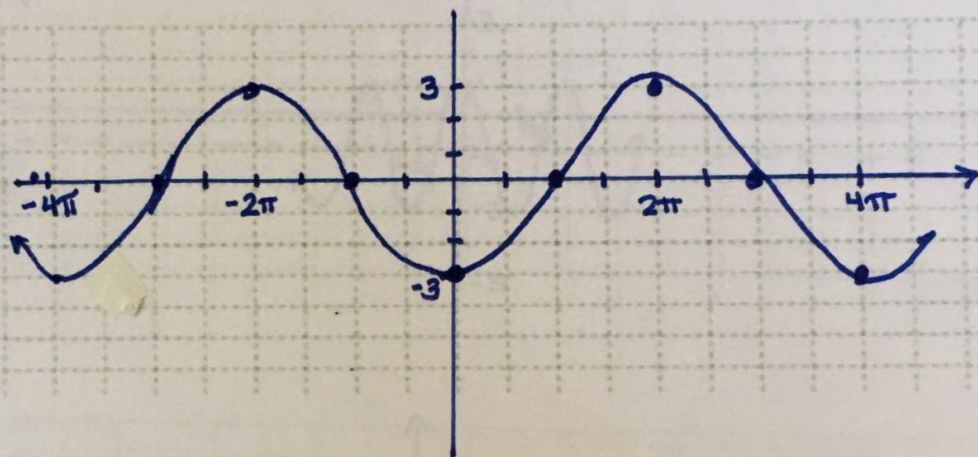
1.)  $y = 2\sin x - 3$

- Amplitude: 2
- Period:  $2\pi$
- Vertical Shift: down 3
- Phase Shift: none



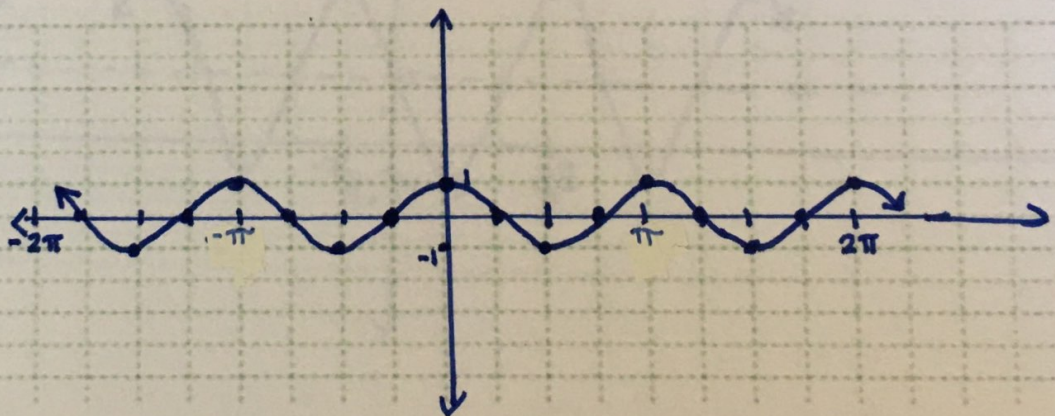
2.)  $y = -3\cos(\frac{1}{2}x)$

- A: 3
- P:  $4\pi$
- VS: none
- PS: none



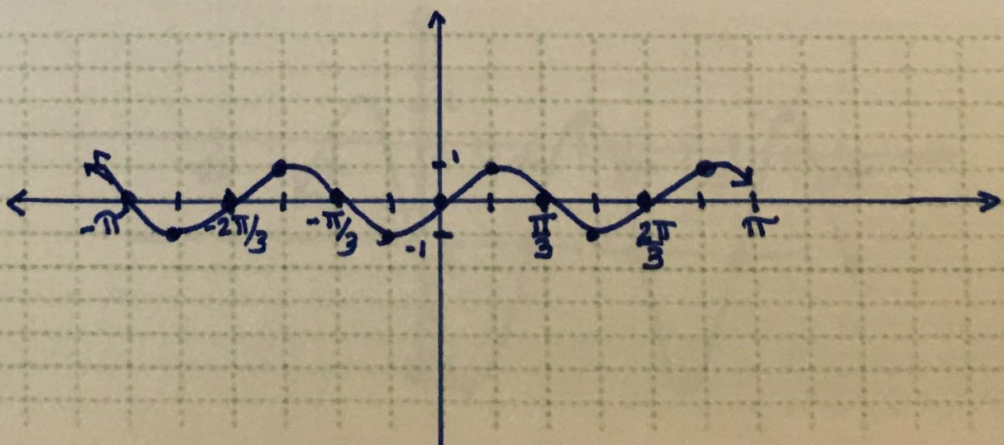
3.)  $y = \sin(2(x + \frac{\pi}{4}))$

- A: 1
- P:  $\pi$
- VS: none
- PS: left  $\pi/4$



4.)  $y = \cos(3(x - \frac{\pi}{6}))$

- A: 1
- P:  $2\pi/3$
- VS: none
- PS: right  $\pi/6$

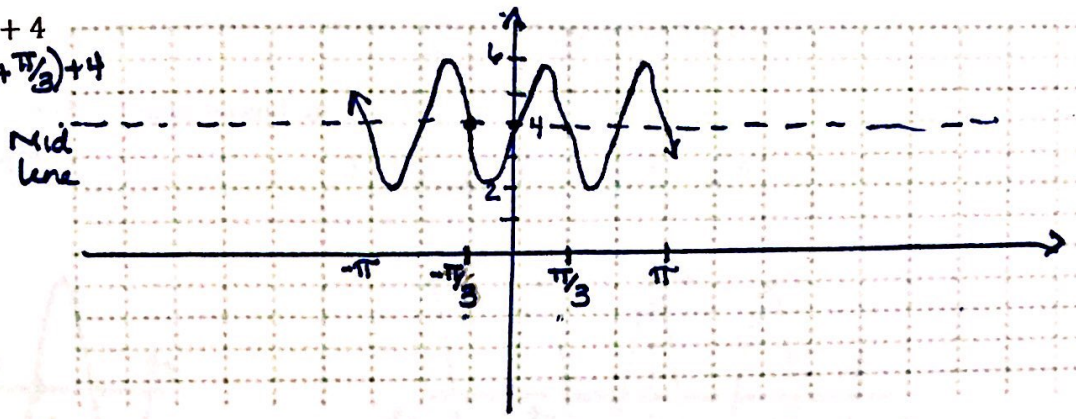




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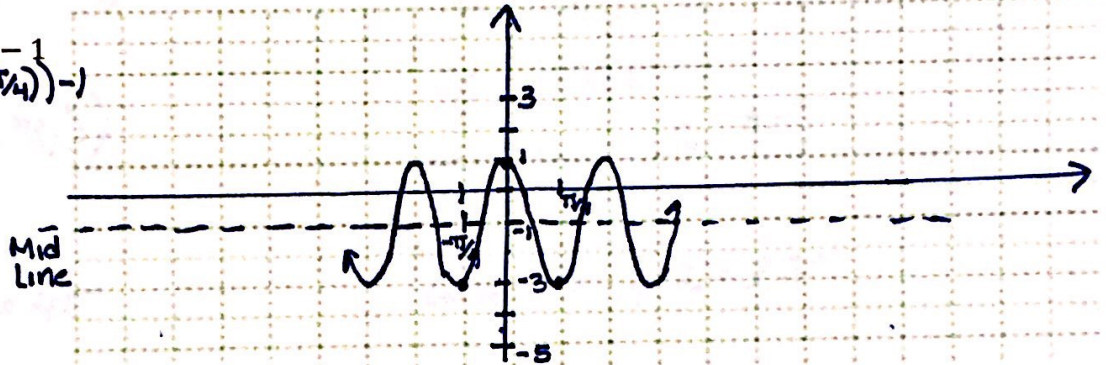
5.)  $y = -2\sin(3x + \pi) + 4$   
 $y = -2\sin(3(x + \frac{\pi}{3})) + 4$

A: 2  
 P:  $\frac{2\pi}{3}$   
 VS: up 4  
 PS: left  $\frac{\pi}{3}$



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

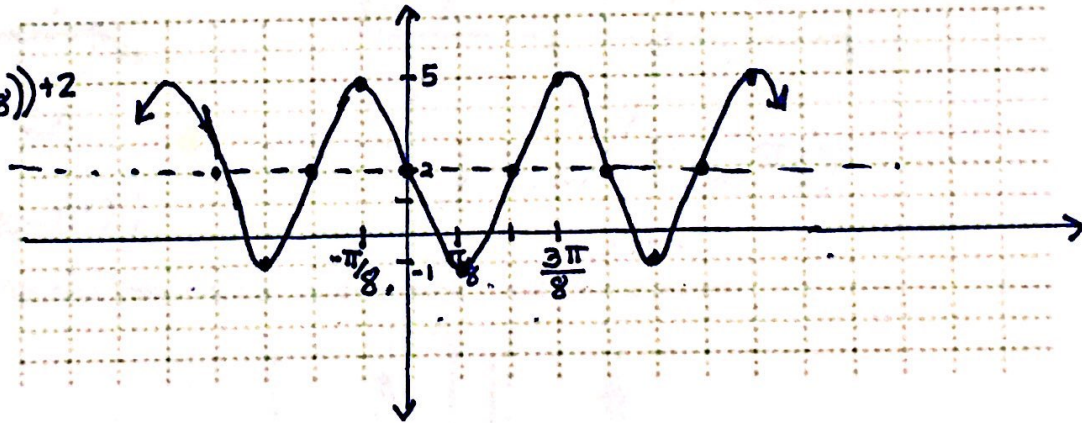
A: 2  
 P:  $\frac{\pi}{2}$   
 VS: down 1  
 PS: left  $\frac{\pi}{4}$



7.)  $y = 3\cos(4x + \frac{\pi}{2}) + 2$

$y = 3\cos(4(x + \frac{\pi}{8})) + 2$

A: 3  
 P:  $\frac{\pi}{2}$   
 VS: up 2  
 PS: left  $\frac{\pi}{8}$



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

A: 4  
 P:  $2\pi$   
 VS: right  $\pi$   
 PS: down 3

