

**Graphs of Sine and Cosine Functions 1**

Graph each of the following.

1.  $f(x) = \sin\left(x - \frac{\pi}{2}\right)$  amp = 1  
 Period =  $2\pi$   
 P.S. = right  $\frac{\pi}{2}$

2.  $f(x) = 3\sin\left(x + \frac{\pi}{6}\right)$  amp = 3  
 pd = 1  
 P.S. left  $\frac{\pi}{6}$

3.  $f(x) = \cos\left(x + \frac{\pi}{2}\right)$   
 amp = 1 P.S. left  $\frac{\pi}{2}$   
 pd =  $2\pi$

4.  $f(x) = 4\cos\left(x - \frac{\pi}{4}\right)$  amp = 4  
 pd =  $2\pi$   
 frequency  $\frac{1}{2\pi}$  P.S. right  $\frac{\pi}{4}$

5.  $f(x) = 2\sin(2x - \pi) + 1$   
 $f(x) = 2\sin\left(2\left(x - \frac{\pi}{2}\right)\right) + 1$  up / mid y=1  
 amp = 2 pd =  $\pi$  P.S. right  $\frac{\pi}{2}$

6.  $f(x) = -\cos(3x - \pi) - 2$  down  
 $f(x) = -\cos\left(3\left(x - \frac{\pi}{3}\right)\right) - 2$   
 amp = 1 pd =  $\frac{2\pi}{3}$  P.S. right  $\frac{\pi}{3}$

7.  $f(x) = -2\sin(3x - \pi)$   
 $f(x) = -2\sin\left(3\left(x - \frac{\pi}{3}\right)\right)$  count by thirds  
 amp = 2 pd =  $\frac{2\pi}{3}$  P.S. right  $\frac{\pi}{3}$

8.  $f(x) = \sin\left(\frac{1}{2}x - \frac{\pi}{3}\right)$  amp =  $\frac{1}{2}$  pd =  $4\pi$   
 $f(x) = \sin\left(\frac{1}{2}\left(x - \frac{2\pi}{3}\right)\right)$  P.S. = right  $\frac{2\pi}{3}$

9.  $f(x) = 6\sin \pi x$   
 amp = 6  
 pd =  $\frac{2\pi}{\pi} = 2$

10.  $f(x) = 2\cos \frac{\pi}{2} x$   
 amp = 2 period =  $\frac{2\pi}{\frac{\pi}{2}} = 4$

11.  $f(x) = \frac{1}{2}\sin 2\pi x$   
 amp =  $\frac{1}{2}$  period  $\frac{2\pi}{2\pi} = 1$

12.  $f(x) = 5\sin\left(3x - \frac{\pi}{2}\right)$  amp = 5 pd =  $\frac{2\pi}{3}$   
 $f(x) = 5\sin\left(3\left(x - \frac{\pi}{6}\right)\right)$

13.  $f(x) = 3\cos\left(\frac{1}{2}x - \frac{\pi}{4}\right)$   
 amp = 3  
 pd =  $4\pi$   $f(x) = 3\left(\frac{1}{2}\left(x - \frac{\pi}{2}\right)\right)$   
 P.S. right  $\frac{\pi}{2}$

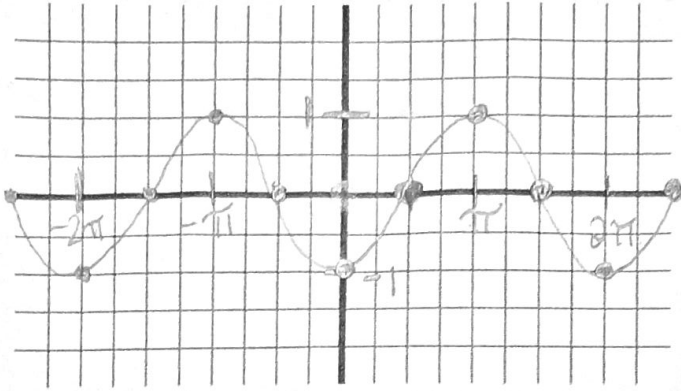
14.  $f(x) = -5\cos\left(\frac{1}{3}x + \frac{\pi}{6}\right)$   
 $f(x) = -5\cos\left(\frac{1}{3}\left(x + \frac{\pi}{2}\right)\right)$   
 amp = 5 pd =  $6\pi$  P.S. right  $\frac{\pi}{2}$

15.  $f(x) = 3\cos(\pi x + 4\pi)$   
 $f(x) = 3\cos(\pi(x + 4))$   
 amp = 3 P.S. left 4  
 pd =  $\frac{2\pi}{\pi} = 2$

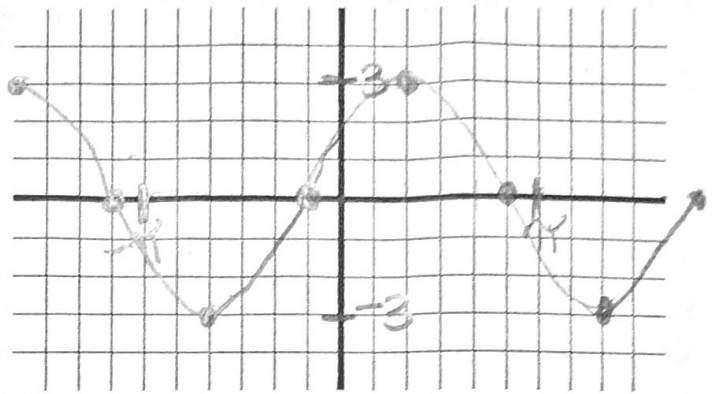
16.  $f(x) = -2\sin(2x - \pi) + 3$   
 $f(x) = -2\sin\left(2\left(x - \frac{\pi}{2}\right)\right) + 3$   
 amp = 2 P.S. right  $\frac{\pi}{2}$   
 pd =  $\frac{2\pi}{2} = \pi$

# Graphs of Sin & Cosine Functions 1

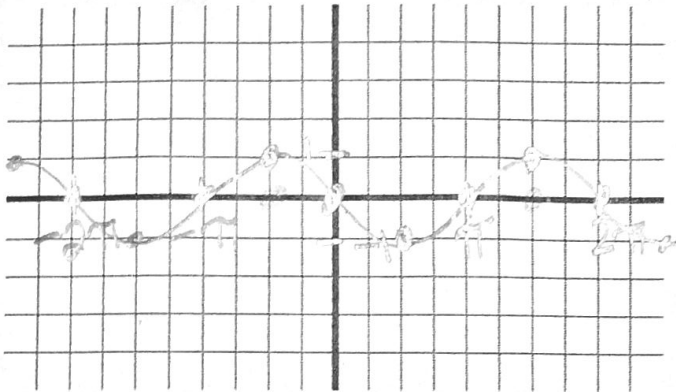
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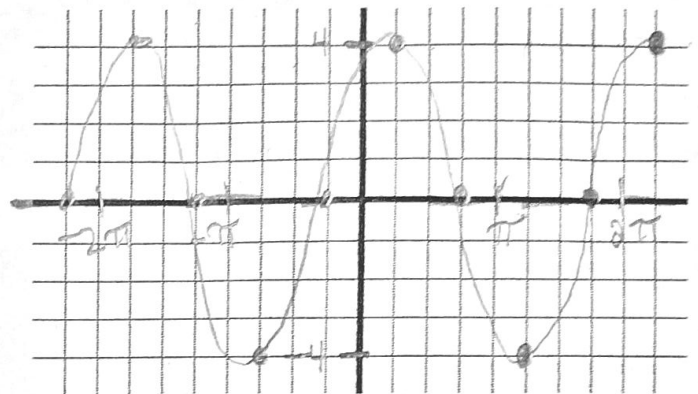
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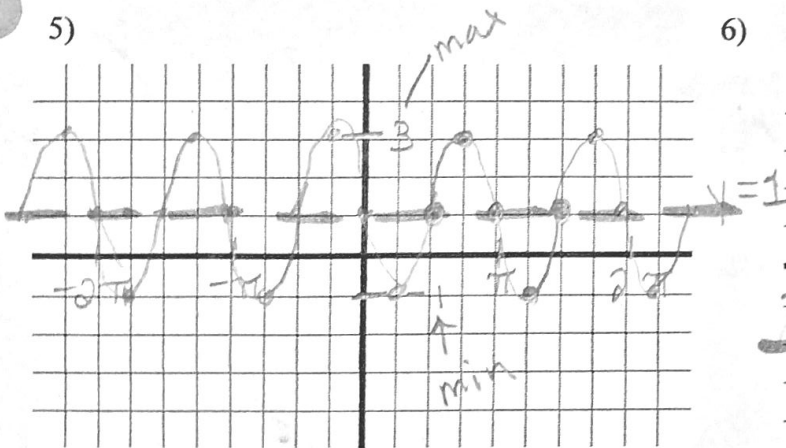
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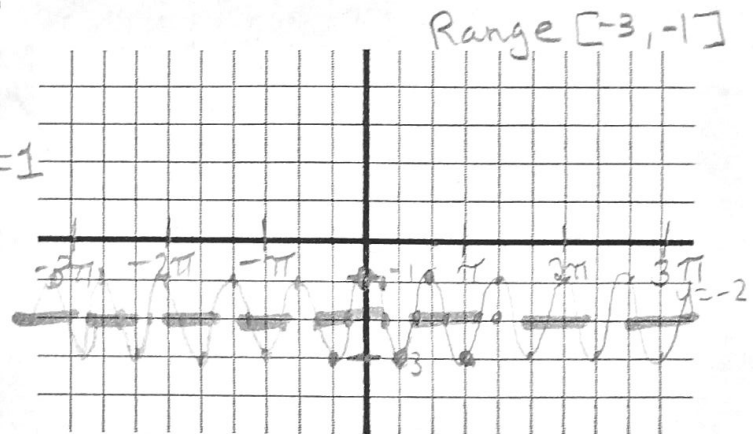
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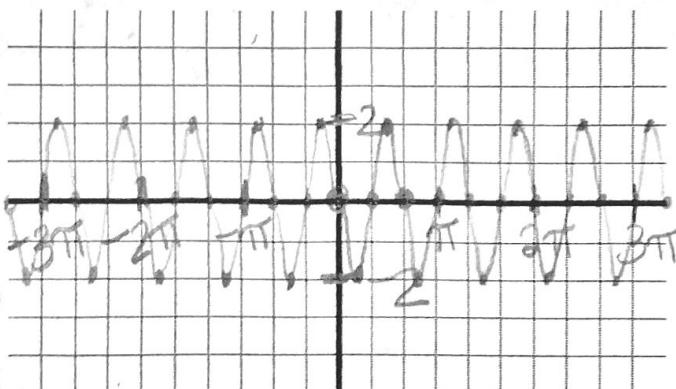
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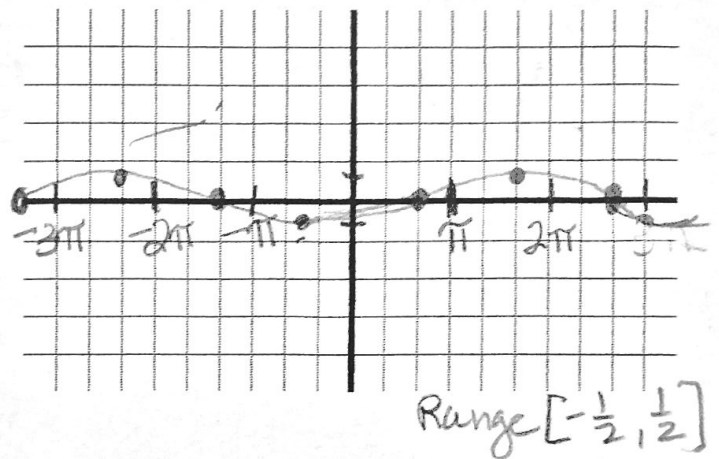
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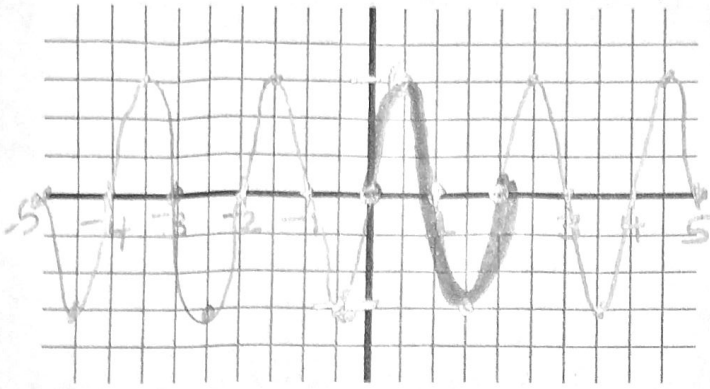
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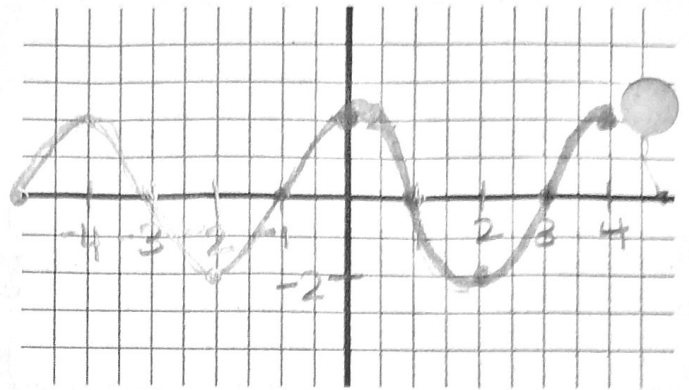
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9)

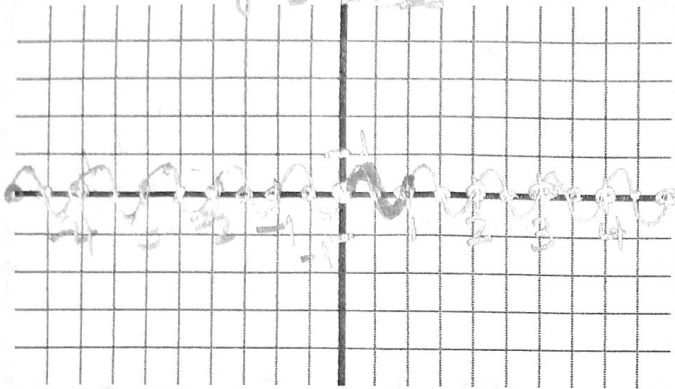


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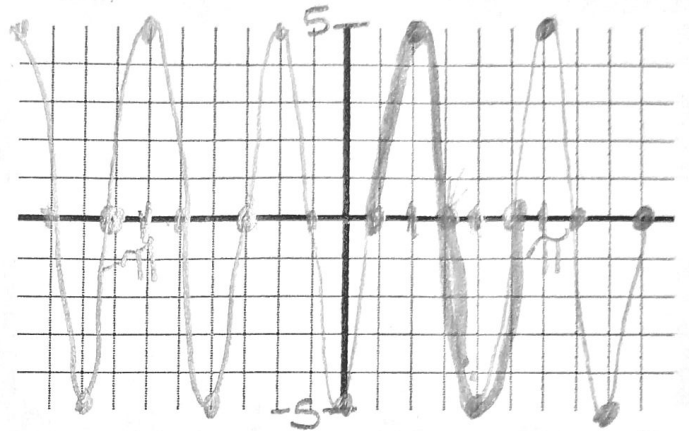


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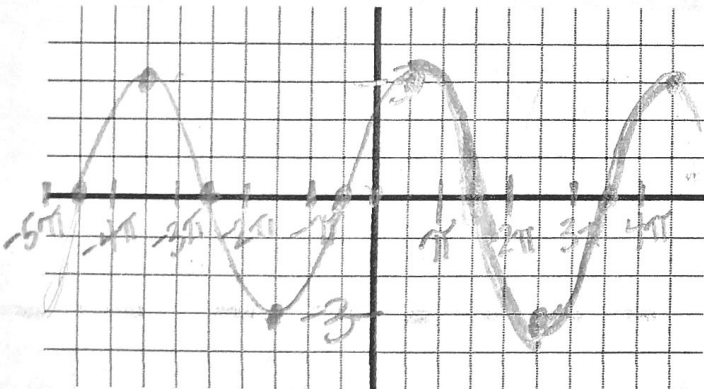
Range  $[-\frac{1}{2}, \frac{1}{2}]$



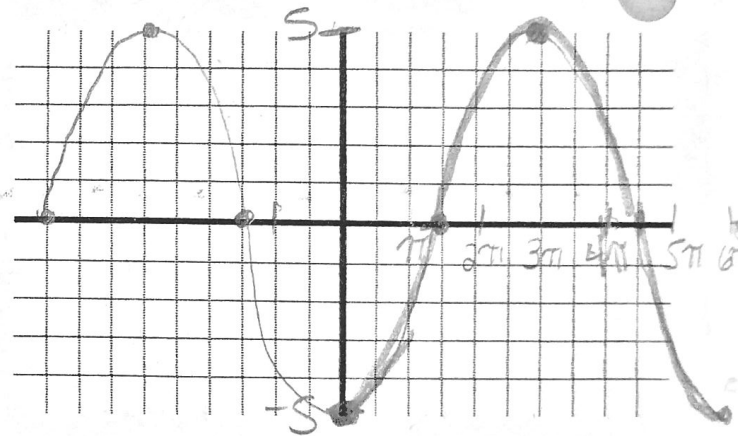
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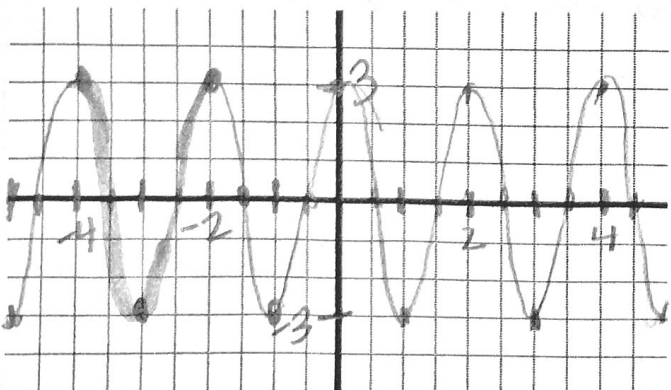
13)



14)



15)



16)

