

For each of the following: (Use a separate sheet of paper! ... graph paper preferably!)

- a) Graph each function . Label the axes.
- b) State the amplitude (if applicable)
- c) State the period

1.  $y = \sin x$

2.  $y = \cos x$

3.  $y = \tan x$

4.  $y = \csc x$

5.  $y = \sec x$

6.  $y = \cot x$

7.  $y = -\sin x$

8.  $y = -\cos x$

9.  $y = -\tan x$

10.  $y = 2 \cot(x)$

11.  $y = \frac{1}{4} \sin\left(\frac{x}{3}\right)$

12.  $y = \cos(3x)$

13.  $y = -2 \sin(2x)$

14.  $y = 4 \sin\left(\frac{x}{2}\right)$

15.  $y = -\sin\left(\frac{x}{4}\right)$

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

17.  $y = 3 \tan(2x)$

18.  $y = -\tan\left(\frac{x}{3}\right)$

For questions 19 – 21, write two equations of the sine function with each amplitude and period.

19. amplitude = 5, period =  $2\pi$

20. amplitude =  $\frac{2}{3}$ , period =  $\pi$

21. amplitude = 2, period = 4

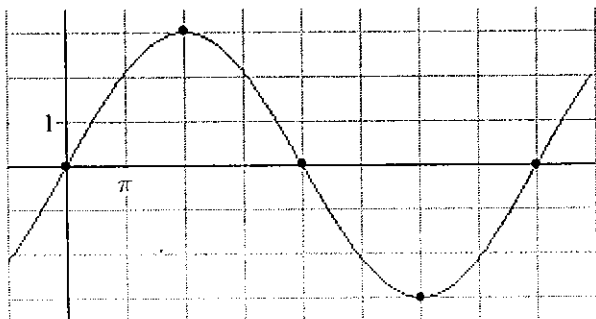
For questions 22 – 24, write two equations of the cosine function with each amplitude and period.

22. amplitude = 1, period =  $\frac{2\pi}{3}$

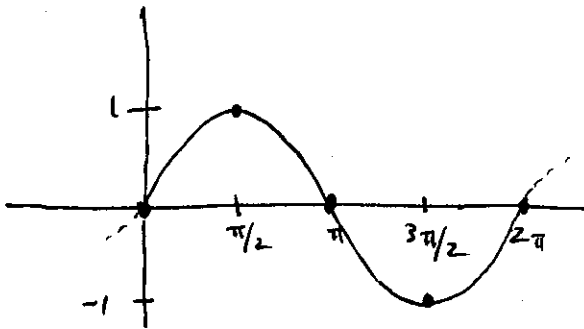
23. amplitude =  $\frac{1}{2}$ , period =  $\frac{\pi}{4}$

24. amplitude = 3, period =  $\frac{1}{2}$

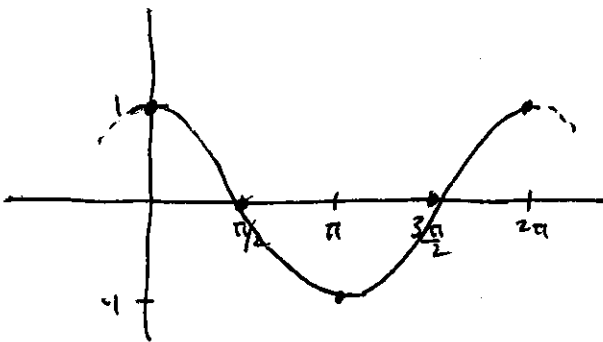
25. Write the equation of the graph given below.



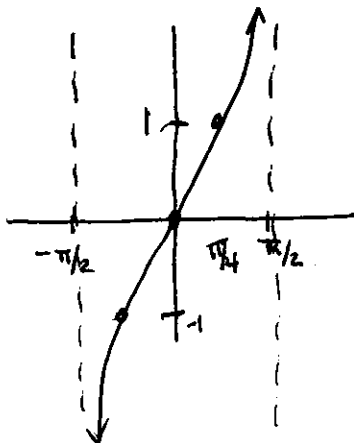
①  $y = \sin x$  Amp = 1  
Period =  $2\pi$



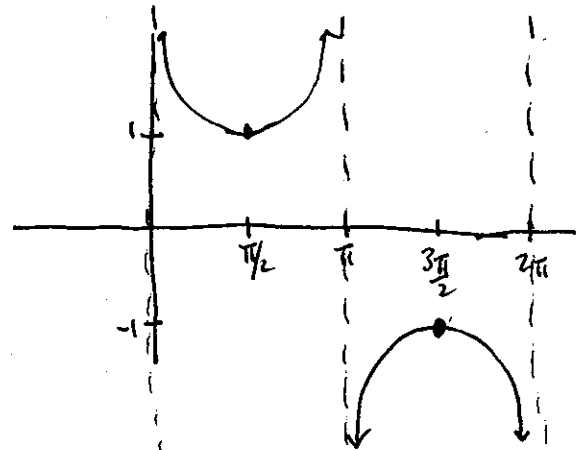
②  $y = \cos x$  Amp = 1  
Period =  $2\pi$



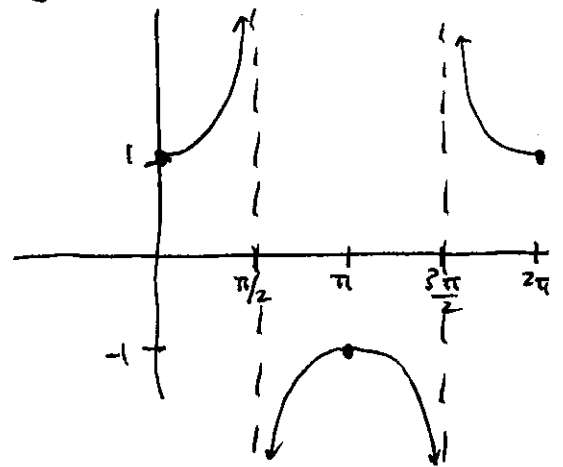
③  $y = \tan x$  Amp N/A  
Period =  $\pi$



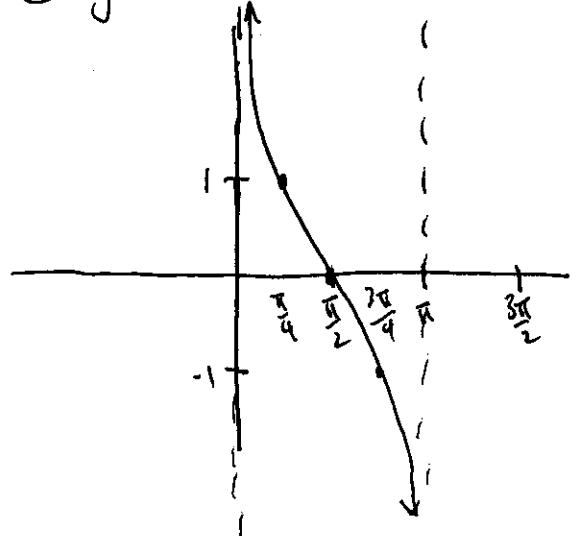
④  $y = \csc x$  Amp N/A  
Period =  $2\pi$



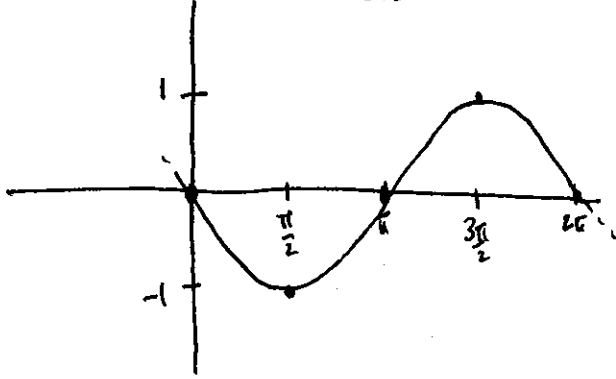
⑤  $y = \sec x$  Amp N/A  
Period =  $2\pi$



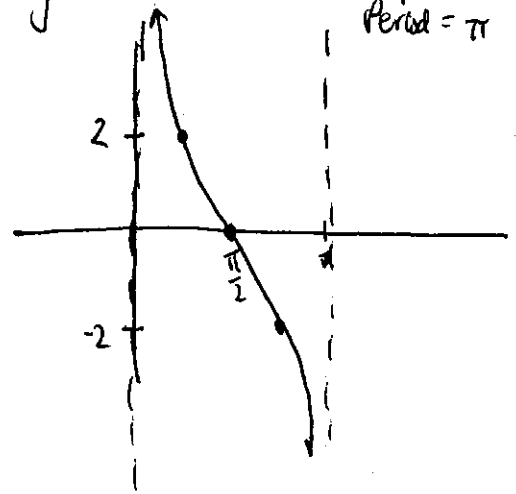
⑥  $y = \cot x$



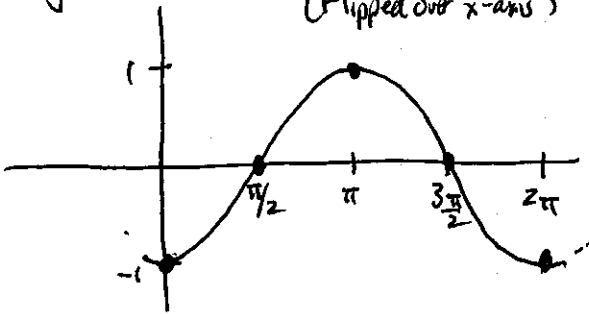
⑦  $y = -\sin x$  Amp = 1 (Flipped over x-axis)  
Period =  $2\pi$



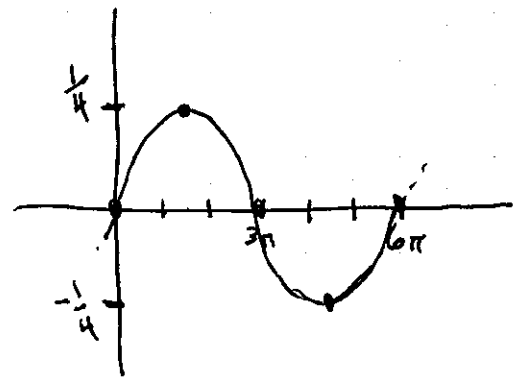
⑩  $y = 2 \cot(x)$  Amp N/A  
Period =  $\pi$



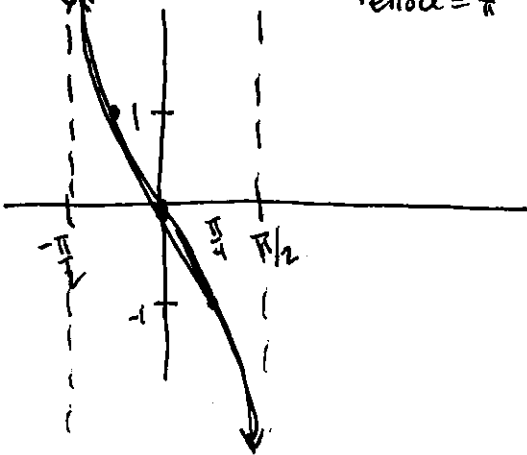
⑧  $y = -\cos x$  Amp = 1 Period =  $2\pi$   
(Flipped over x-axis)



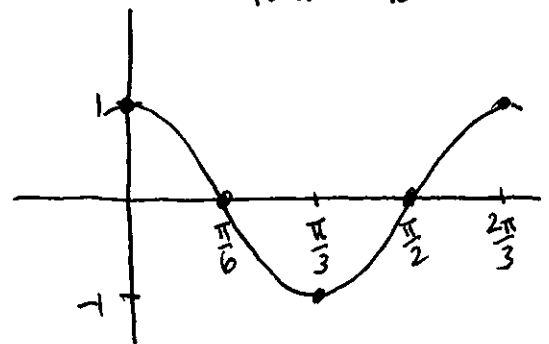
⑪  $y = \frac{1}{4} \sin(x/3)$  Amp =  $1/4$   
Period =  $6\pi$



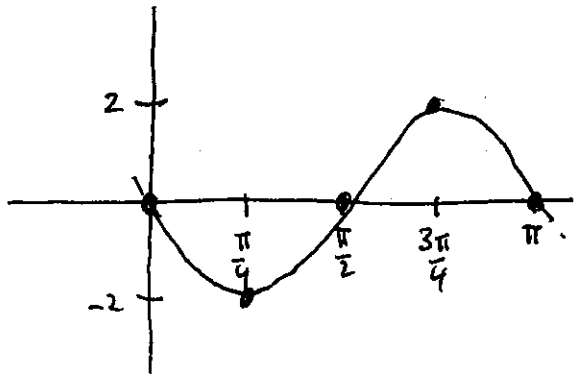
⑨  $y = -\tan x$  Amp N/A (Flipped over x-axis)  
Period =  $\pi$



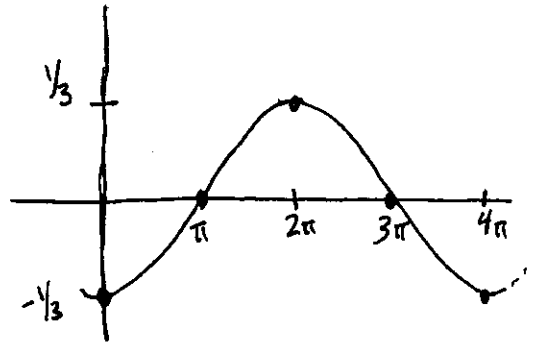
⑫  $y = \cos(3x)$  Amp = 1  
Period =  $2\pi/3$



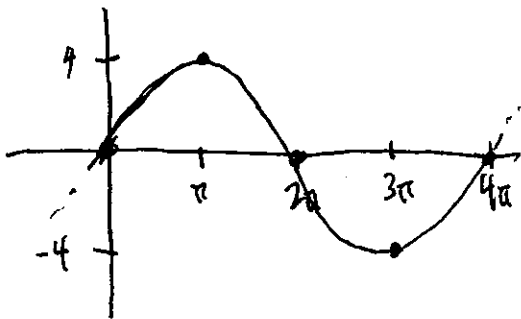
⑬  $y = -2\sin(2x)$  Amp = 2 (Flipped over x-axis)  
Period =  $\pi$



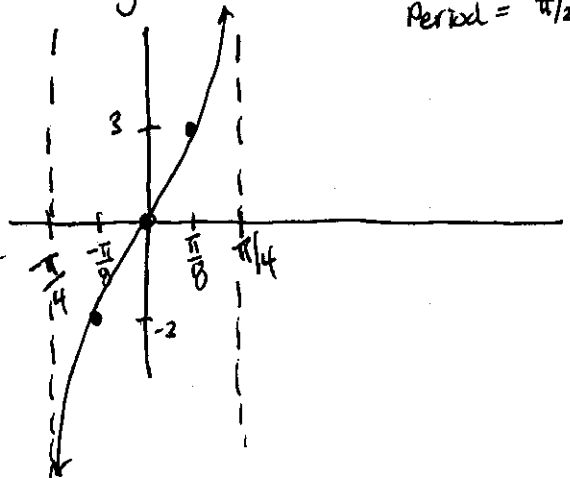
⑭  $y = -\frac{1}{3}\cos\left(\frac{x}{2}\right)$  Amp =  $\frac{1}{3}$   
(Flipped over x-axis)  
Period =  $4\pi$



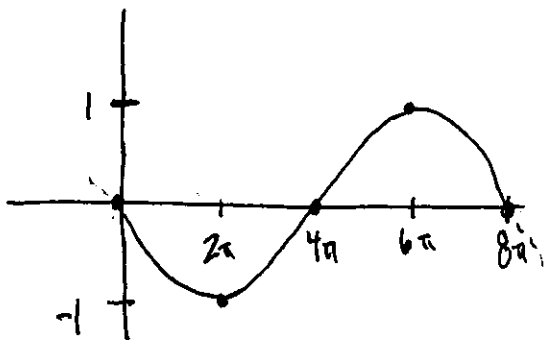
⑮  $y = 4\sin\left(\frac{x}{2}\right)$  Amp = 4  
Period =  $4\pi$



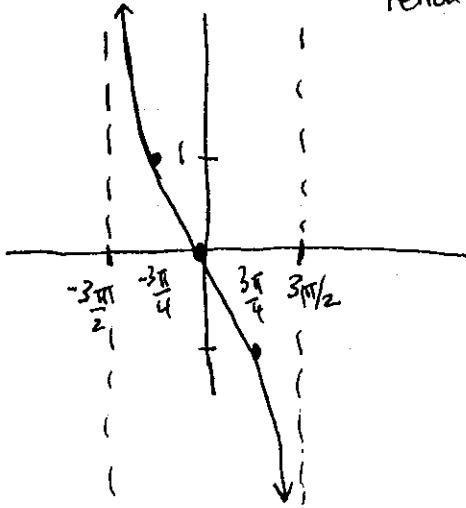
⑯  $y = 3\tan(2x)$  Amp N/A  
Period =  $\frac{\pi}{2}$



⑰  $y = -\sin\left(\frac{x}{4}\right)$  Amp = 1 (Flipped over x-axis)  
Period =  $8\pi$



⑮  $y = -\tan\left(\frac{x}{3}\right)$  Amp N/A  
 (Flipped over x-axis)  
 Period  $3\pi$



⑯  $y = 5\sin(x)$  &  $y = -5\sin(x)$

⑰  $y = \frac{2}{3}\sin(2x)$  &  $y = -\frac{2}{3}\sin(2x)$

⑱  $y = 2\sin\left(\frac{\pi}{2}x\right)$  &  $y = -2\sin\left(\frac{\pi}{2}x\right)$

⑳  $y = \cos(3x)$  &  $y = -\cos(3x)$

㉑  $y = \frac{1}{2}\cos(8x)$  &  $y = -\frac{1}{2}\cos(8x)$

㉒  $y = 3\cos(4\pi x)$  &  $y = -3\cos(4\pi x)$

㉓ Ampitude = 3 Period =  $8\pi$

$\Rightarrow y = 3\sin\left(\frac{x}{4}\right)$

NOTE: if  $y = a\sin(bx)$

the period =  $\frac{2\pi}{b}$

if we want the period to be = 4,

then

$$4 = \frac{2\pi}{b}$$

$$b = \frac{2\pi}{4} = \frac{\pi}{2}$$

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

$$b = 4\pi$$