Name KEY Period _____

no calculator

Precalculus: 4.4-4.5 Review

What is the period and amplitude of each function?

1. $y = \sin x$

period $= 2\pi$
amp $= 1$

2. $y = \cos 2x$

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

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

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

4. $y = 4\sin\frac{x}{2}$

period $= \frac{2\pi}{\frac{1}{2}} = 2\pi \cdot 2 = 4\pi$
amp $= 4$

5. $y = \frac{1}{2}\cos x$

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

6. $y = 0.3\cos\frac{\pi x}{2}$

amp $= .3$
period $= \frac{2\pi}{\frac{\pi}{2}} = 2\pi \cdot \frac{2}{\pi} = 4$

What is the period of each function?

7. $y = 2\tan x$

π

8. $y = 2\sec 3x$

$\frac{2\pi}{3}$

9. $y = \cot\frac{x}{2}$

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

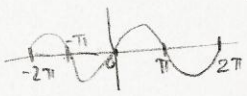
10. $y = \frac{1}{2}\csc 2x$

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

Find the zeros of each function from $[-2\pi, 2\pi]$.

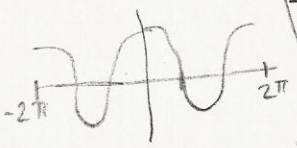
11. $y = \sin x$

$0, \pm\pi, \pm 2\pi$



12. $y = \cos x$

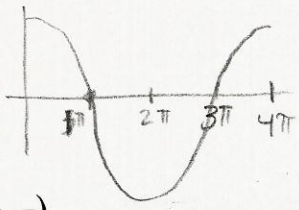
$\pm\frac{\pi}{2}, \pm\frac{3\pi}{2}$



13. $y = \cos\frac{x}{2}$

$\pm 1\pi, \pm 3\pi$

$\frac{2\pi}{\frac{1}{2}} = 4\pi$

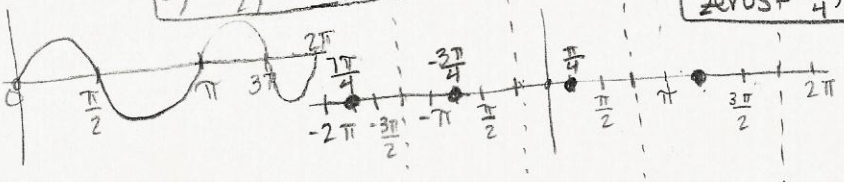


14. $y = \sin 2x$

$0, \pm\frac{\pi}{2}, \pm\pi, \pm 3\pi, \pm 4\pi$

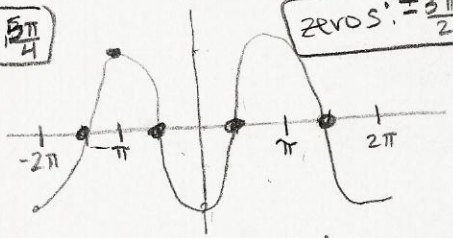
15. $y = \tan\left(x - \frac{\pi}{4}\right)$

zeros: $-\frac{1\pi}{4}, -\frac{3\pi}{4}, \frac{\pi}{4}, \frac{5\pi}{4}$



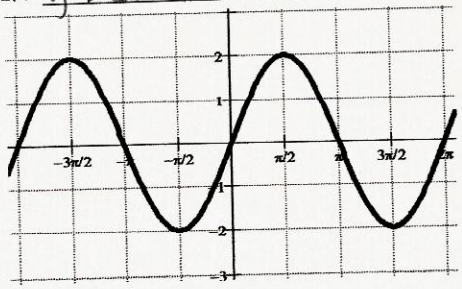
16. $y = \cos(x + \pi)$

zeros: $\pm\frac{3\pi}{2}, \pm\frac{\pi}{2}$

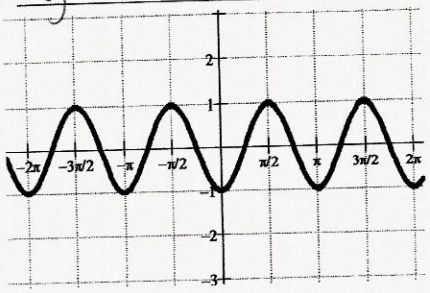


Write an equation for each graph.

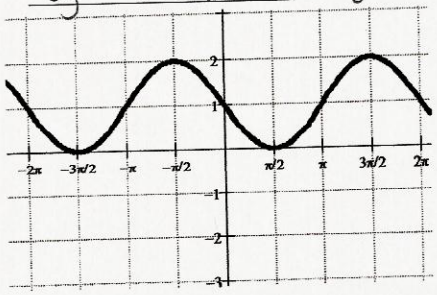
17. $y = 2\sin x$



18. $y = -\cos 2x$



19. $y = -\sin x + 1$ or $y = \sin(-x) + 1$



Find the max and min of each function.

20. $y = 3\sin x$

max = 3
min = -3

21. $y = -2\cos x$

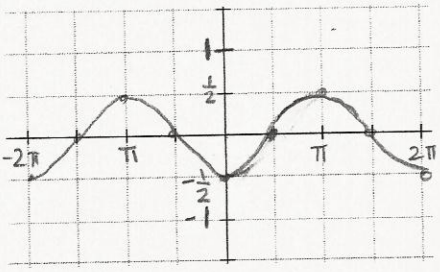
max = 2
min = -2

23. $y = 4\sin x - 3$

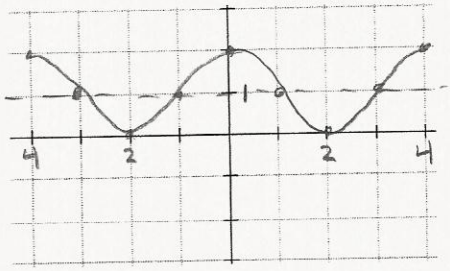
max = 1
min = -7

Graph one positive and one negative period of each function.

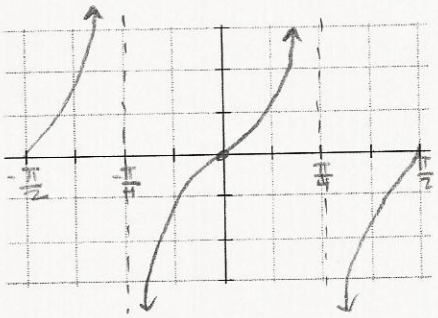
24. $y = \frac{1}{2}\sin\left(x - \frac{\pi}{2}\right)$



25. $y = \cos\frac{\pi x}{2} + 1$ $\quad \frac{2\pi}{\frac{\pi}{2}} = 2\pi \cdot \frac{2}{\pi} = 4$

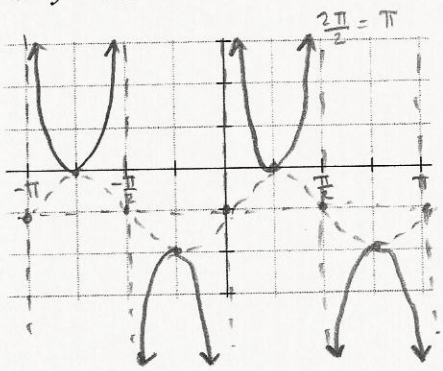


26. $y = \tan 2x$ $\quad \frac{\pi}{2}$

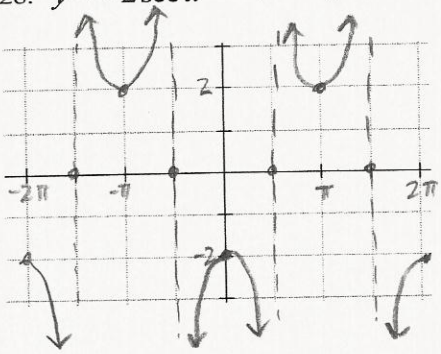


27. $y = \csc 2x - 1$ $\quad \sin 2x - 1$

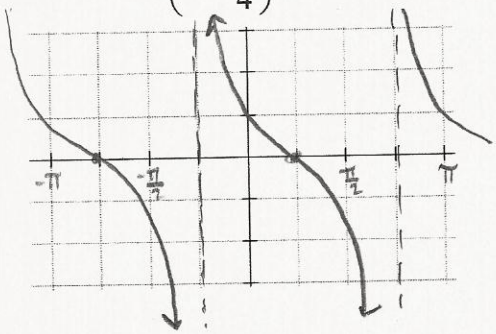
$\frac{2\pi}{2} = \pi$



28. $y = -2\sec x$ $\quad -2\cos x$



29. $y = \cot\left(x + \frac{\pi}{4}\right)$



Evaluate.

30. $\sin 45° = \frac{\sqrt{2}}{2}$

31. $\cos 210° =$ $\quad -\frac{\sqrt{3}}{2}$

32. $\tan\frac{5\pi}{6} =$ $\quad -\frac{1}{\sqrt{3}}$ or $-\frac{\sqrt{3}}{3}$

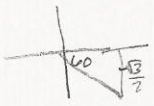
33. $\sec\frac{5\pi}{4} = -\sqrt{2}$

$\cos\frac{5\pi}{4}$  $\Rightarrow -\frac{1}{\sqrt{2}}$

34. $\cot 315° = -1$

$\tan 315 = -1$

35. $\sin\frac{5\pi}{3} = -\frac{\sqrt{3}}{2}$



Solve for θ, $0 < \theta < \frac{\pi}{2}$.

36. $\sin\theta = \frac{1}{2}$

$\frac{\pi}{6}$

37. $\tan\theta = 1$

$\frac{\pi}{4}$

38. $\sec\theta = 2$

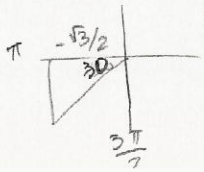
$\cos\theta = \frac{1}{2}$

$\frac{\pi}{3}$

Solve for θ, $\pi < \theta < \frac{3\pi}{2}$.

36. $\cos\theta = -\frac{\sqrt{3}}{2}$

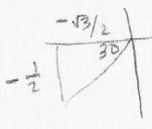
$\theta = \frac{7\pi}{6}$



37. $\cot\theta = \sqrt{3}$

$\tan\theta = \frac{1}{\sqrt{3}}$

$\theta = \frac{7\pi}{6}$



38. $\sin\theta = -\frac{\sqrt{2}}{2}$

$\frac{5\pi}{4}$