

Name: _____

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 2π

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

Amp 1
Pd π

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 2π
1 up

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

Amp 3
Pd 2π
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 2π

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

Amp 1
Pd 6π

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

Amp 4
Pd: 8π

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

Amp 10
Pd $\frac{2\pi}{5}$

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

Amp $3/2$
Pd π

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

Amp 1
Pd: 4π
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 6π
left $\pi/2$
down 2

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

Amp 4
Pd 2π

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: 4π

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

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

EVALUATIONS...... use the unit circle visuals to help you

$$\sin^{-1}\left(-\frac{\sqrt{3}}{2}\right) = -\frac{\pi}{3}$$

$$\sin^{-1}(-1) = -\frac{\pi}{2}$$

$$\arccos\left(-\frac{\sqrt{2}}{2}\right) = \frac{3\pi}{4}$$

$$\arctan\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6}$$

$$\cos^{-1}\left(\frac{1}{2}\right) = \frac{\pi}{3}$$

$$\tan^{-1}(0) = 0$$

$$\sin^{-1}\left(-\frac{1}{2}\right) = -\frac{\pi}{6}$$

$$\arccos(-1) = \pi$$

careful...

$\cos \sin x$

DOUBLE EV

assume that inverses w
& range restrictions

$$\sin^{-1}\left(\sin^{\frac{1}{2}}\frac{\pi}{6}\right) = \frac{\pi}{6}$$

$$\arccos\left(\cos^{\frac{1}{2}}\frac{7\pi}{6}\right) = \frac{5\pi}{6}$$

$$\cos^{-1}\left(\sin^{\frac{\sqrt{3}}{2}}\frac{2\pi}{3}\right) = \frac{\pi}{6}$$

$$\cos\left(\arcsin\left(\frac{-\sqrt{3}}{2}\right)\right) = \frac{1}{2}$$