

⑩

Shape is ?

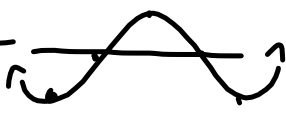
$y = -2 \cos\left(3\theta + \frac{\pi}{2}\right) + 3$

Starts @ bottom amp

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

$-\frac{\pi}{2}$

$y = 3$



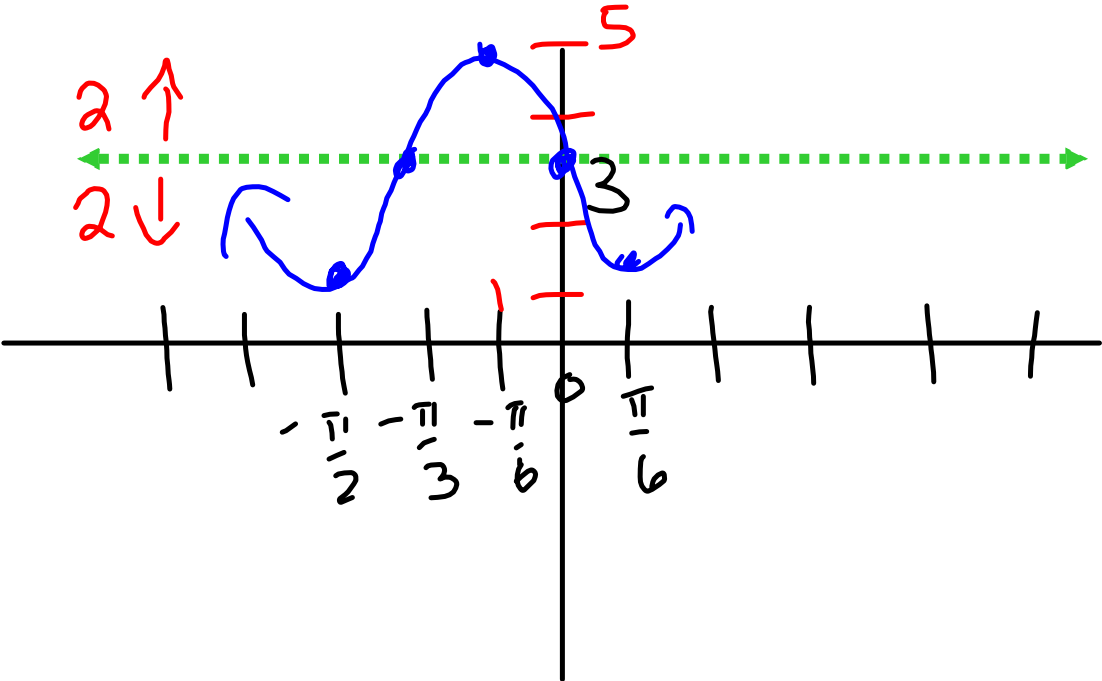
$\frac{2\pi}{3}(0) = 0$ $-\frac{\pi}{2} = -\frac{\pi}{2}$

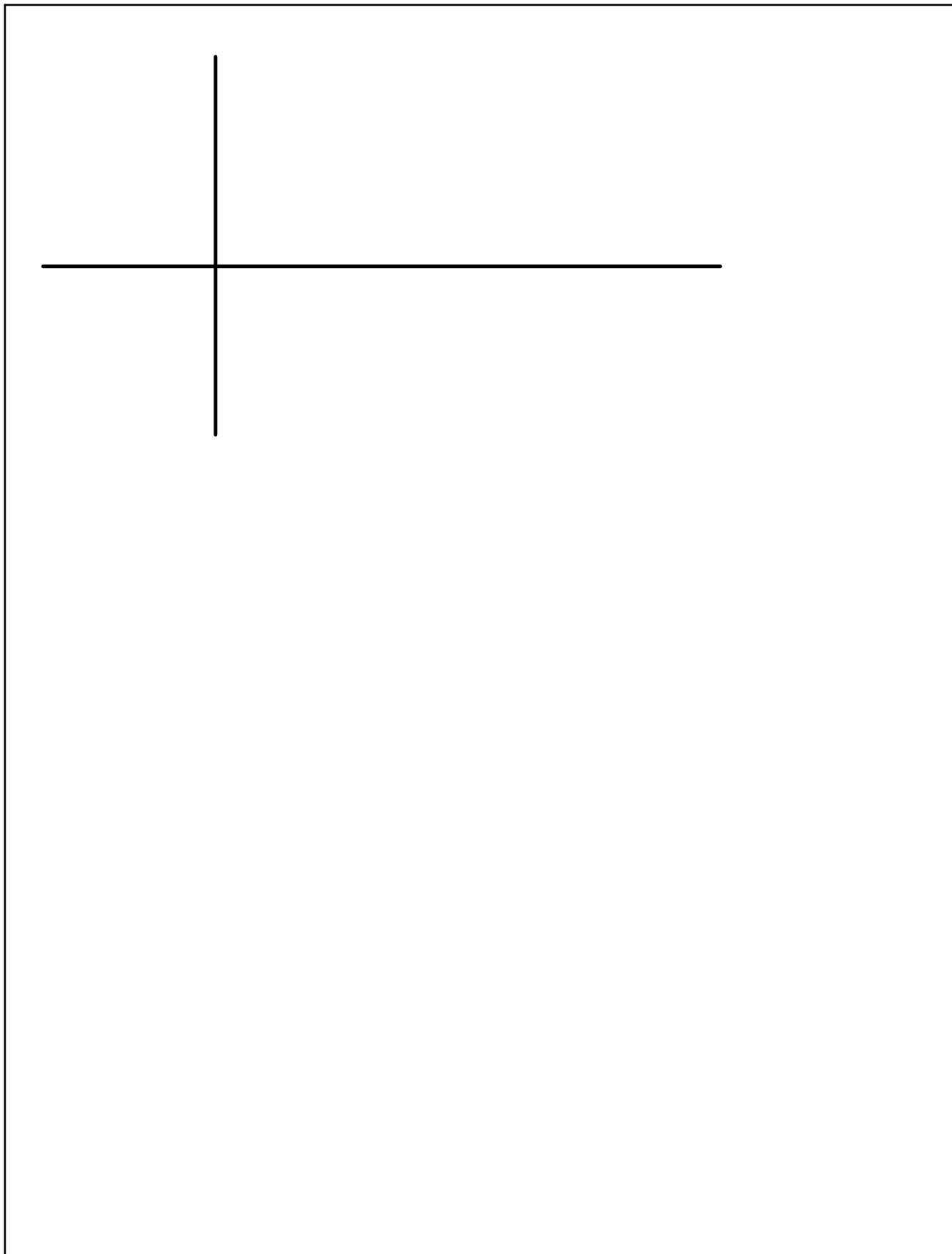
$\frac{2\pi}{3}\left(\frac{1}{4}\right) = \frac{2\pi}{12}$ $-\frac{\pi}{2} \cdot \frac{6}{6} = \frac{6\pi}{12} = -\frac{4\pi}{12} = -\frac{\pi}{3}$

$\frac{2\pi}{3}\left(\frac{2}{4}\right) = \frac{4\pi}{12}$ $-\frac{\pi}{2} \cdot \frac{6}{6} = -\frac{2\pi}{12} = -\frac{\pi}{6}$

$\frac{2\pi}{3}\left(\frac{3}{4}\right) = \frac{6\pi}{12}$ $-\frac{\pi}{2} \cdot \frac{6}{6} = 0$

$\frac{2\pi}{3}\left(\frac{4}{4}\right) = \frac{2 \cdot 2\pi}{2 \cdot 3} = \frac{4\pi}{6} - \frac{3\pi}{6} = \frac{\pi}{6}$





⑥

$$y = -2 \cos\left(\frac{\theta}{3}\right)$$

↑
start
@ bottom
amp

↖ period

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

$$C = 6\pi$$

amp ↑↓ 2

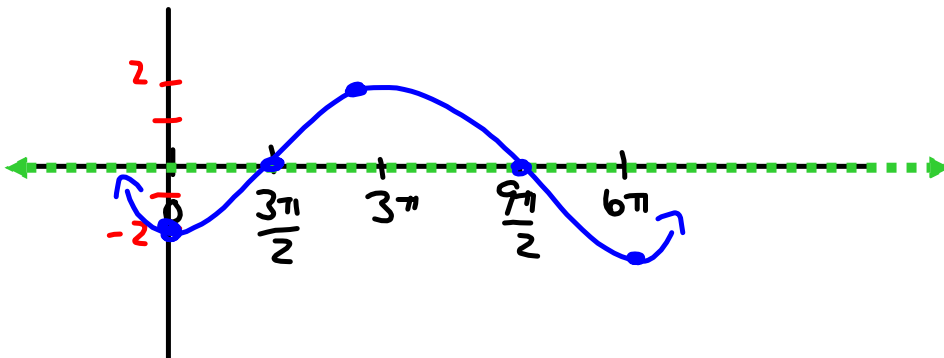
$$6\pi(0) = 0$$

$$6\pi\left(\frac{1}{4}\right) = \frac{6\pi}{4} = \frac{3\pi}{2}$$

$$6\pi\left(\frac{2}{4}\right) = \frac{12\pi}{4} = 3\pi$$

$$6\pi\left(\frac{3}{4}\right) = \frac{18\pi}{4} = \frac{9\pi}{2}$$

$$6\pi\left(\frac{4}{4}\right) = 6\pi$$



⑩ $y = 2 \cos(3\theta + \frac{\pi}{2}) + 3$

amp: $\frac{2}{3\theta = 2\pi}$

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

phase shift: $-\frac{\pi}{2}$

midline: $y = 3$

period: $\frac{2\pi}{3}$ phase shift: $-\frac{\pi}{2}$

$(0) = 0 - \frac{\pi}{2} = -\frac{\pi}{2}$

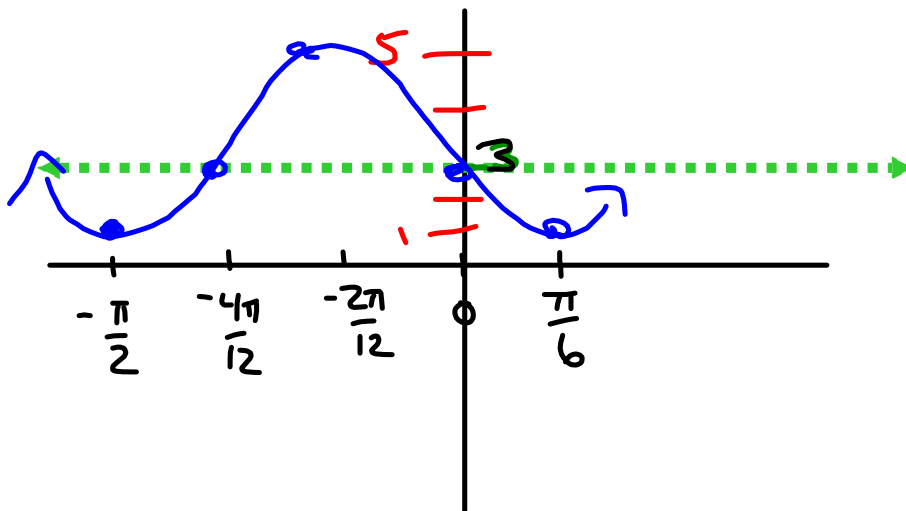
pts. on x-axis

$(\frac{1}{4}) = \frac{2\pi}{12} - \frac{\pi}{2} \cdot \frac{6\pi}{12} = -\frac{4\pi}{12}$

$(\frac{2}{4}) = \frac{4\pi}{12} - \frac{\pi}{2} \cdot \frac{6\pi}{12} = -\frac{2\pi}{12}$

$(\frac{3}{4}) = \frac{6\pi}{12} - \frac{\pi}{2} \cdot \frac{6\pi}{12} = \frac{0\pi}{12} = 0$

$(\frac{4}{4}) = \frac{2\pi}{3} - \frac{\pi}{2} \cdot 3 = \frac{4\pi}{6} - \frac{3\pi}{6}$



4) $y = 2 \cos(3\theta) + 1$

amp *period* *midline*

amp = 2

period $\Rightarrow 3\theta = 2\pi$
 $\theta = \frac{2\pi}{3}$

Phase shift: None

midline: $y = 1$

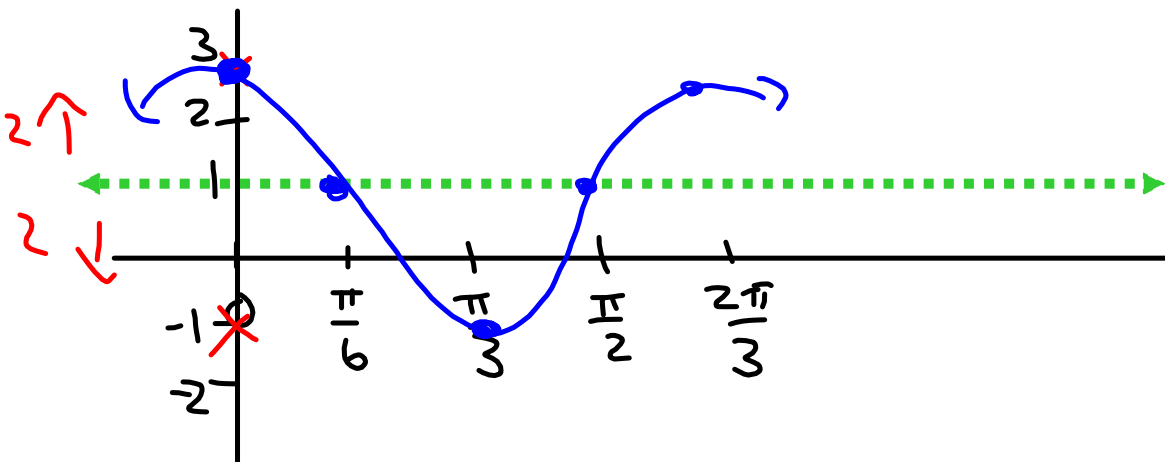
$\frac{2\pi}{3} (0) = 0$ pts. on x-axis

$\frac{2\pi}{3} (\frac{1}{4}) = \frac{2\pi}{12} = \frac{\pi}{6}$

$\frac{2\pi}{3} (\frac{2}{4}) = \frac{4\pi}{12} = \frac{\pi}{3}$

$\frac{2\pi}{3} (\frac{3}{4}) = \frac{6\pi}{12} = \frac{\pi}{2}$

$\frac{2\pi}{3} (\frac{4}{4}) = \frac{2\pi}{3}$



$$y = -4 \cos\left(\frac{3\theta}{2}\right)$$

$$\text{amp} \rightarrow 4$$

$$\text{pd} \Rightarrow \frac{4\pi}{3}$$

$$\text{midline} \Rightarrow y = 0$$

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

$$3\theta = 4\pi$$

$$\theta = \frac{4\pi}{3}$$

$$\frac{4\pi}{3} (0) = 0$$

$$\frac{4\pi}{3} \left(\frac{1}{4}\right) = \frac{4\pi}{12} = \frac{\pi}{3}$$

$$\frac{4\pi}{3} \left(\frac{2}{4}\right) = \frac{8\pi}{12} = \frac{2\pi}{3}$$

$$\frac{4\pi}{3} \left(\frac{3}{4}\right) = \frac{12\pi}{12} = \pi$$

$$\frac{4\pi}{3} \left(\frac{4}{4}\right) = \frac{4\pi}{3}$$

