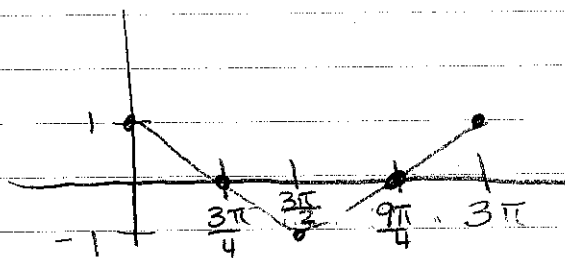


1. $y = \cos\left(-\frac{2}{3}x\right)$

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

$A = 1$

$Pd = \frac{2\pi}{b} = \frac{2\pi}{2/3} = 2\pi \cdot \frac{3}{2} = 3\pi$ $d: [0, 3\pi]$
 $r: [-1, 1]$

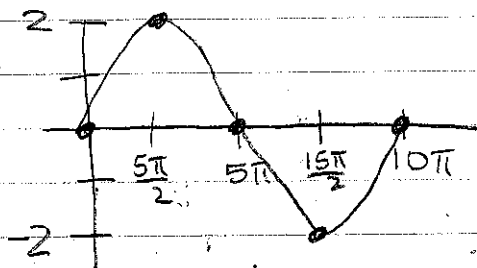


2. $y = -2\sin\left(\frac{1}{5}x\right)$

$y = 2\sin\left(\frac{1}{5}x\right)$

$A = 2$

$Pd = \frac{2\pi}{1/5} = 2\pi \cdot 5 = 10\pi$ $d: [0, 10\pi]$
 $r: [-2, 2]$

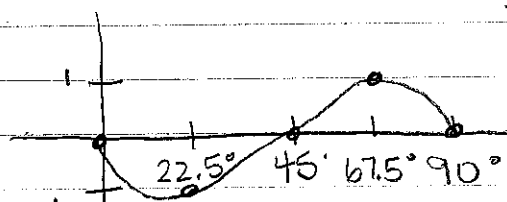


3. $y = \sin(-4\theta)$

$y = -\sin(4\theta)$

$A = 1$

$Pd = \frac{360}{b} = \frac{360}{4} = 90^\circ$ $d: [0, 90^\circ]$
 $r: [-1, 1]$
 refl. x-axis

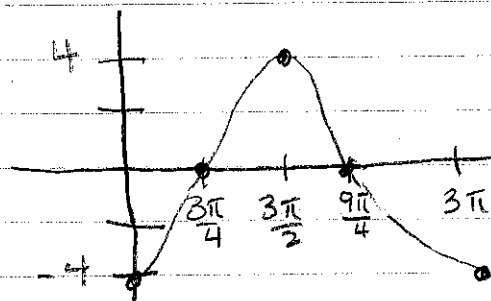


4. $y = -4\cos\left(-\frac{2}{3}x\right)$

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

$A = 4$

$Pd = \frac{2\pi}{2/3} = 2\pi \cdot \frac{3}{2} = 3\pi$ $d: [0, 3\pi]$
 $r: [-4, 4]$
 refl. x-axis

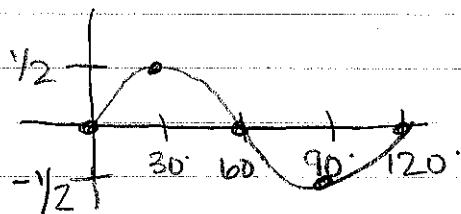


$$5. y = \frac{-1}{\sqrt{2}} \sin(-3\theta)$$

$$y = \frac{1}{2} \sin(3\theta)$$

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

$$Pd = \frac{360}{3} = 120^\circ$$



$$d: [0, 120^\circ]$$

$$r: [-1/2, 1/2]$$

$$6. y = \cos(-x + \pi)$$

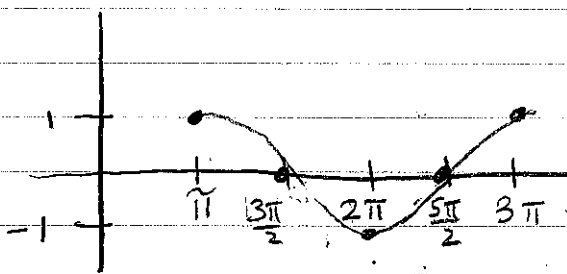
$$y = \cos(-(x - \pi))$$

$$y = \cos(x - \pi)$$

$$A = 1$$

$$Pd = 2\pi$$

$$Ps = \pi \rightarrow$$



$$d: [\pi, 3\pi]$$

$$r: [-1, 1]$$

$$7. y = 1 + 3\cos(-\frac{\pi}{2}x)$$

$$y = 3\cos(-\frac{\pi}{2}x) + 1$$

$$y = 3\cos(\frac{\pi}{2}x) + 1$$

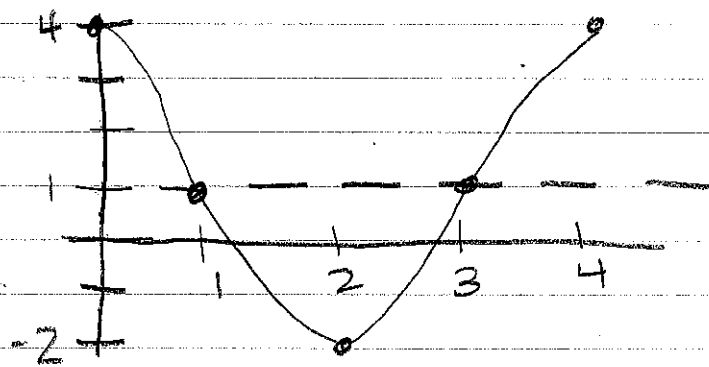
$$A = 3$$

$$Pd = \frac{2\pi}{\pi/2} = 2\pi \cdot \frac{2}{\pi} = 4$$

$$d: [0, 4]$$

$$r: [-2, 4]$$

$$Vs: 1 \uparrow$$



$$8. y = 3 + \sin\left(-\frac{1}{2}x - \frac{\pi}{6}\right)$$

$$y = \sin\left(-\frac{1}{2}x - \frac{\pi}{6}\right) + 3$$

$$y = \sin\left(-\left(\frac{1}{2}x + \frac{\pi}{6}\right)\right) + 3$$

$$y = -\sin\left(\frac{1}{2}x + \frac{\pi}{6}\right) + 3$$

$$A = 1$$

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

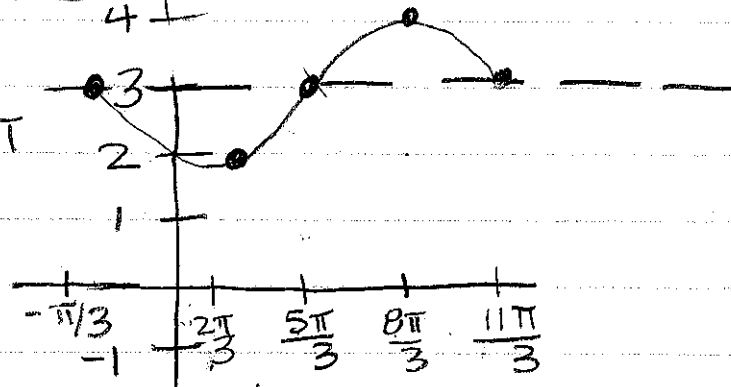
refl. x-axis

$$\frac{1}{2}x + \frac{\pi}{6} = 0$$

$$2 \cdot \frac{1}{2}x = -\frac{\pi}{6} \cdot 2$$

$$x = -\frac{\pi}{3} \leftarrow PS$$

$$VS = 3$$



$$d: \left[-\frac{\pi}{3}, \frac{11\pi}{3}\right]$$

$$r: [2, 4]$$

$$9. y = 4\cos(-6\theta + 420^\circ) - 2$$

$$y = 4\cos\left(-\left(6\theta - 420^\circ\right)\right) - 2$$

$$y = 4\cos(6\theta - 420^\circ) - 2$$

$$A = 4$$

$$Pd = \frac{360}{6} = 60^\circ$$

$$VS = -2 \downarrow$$

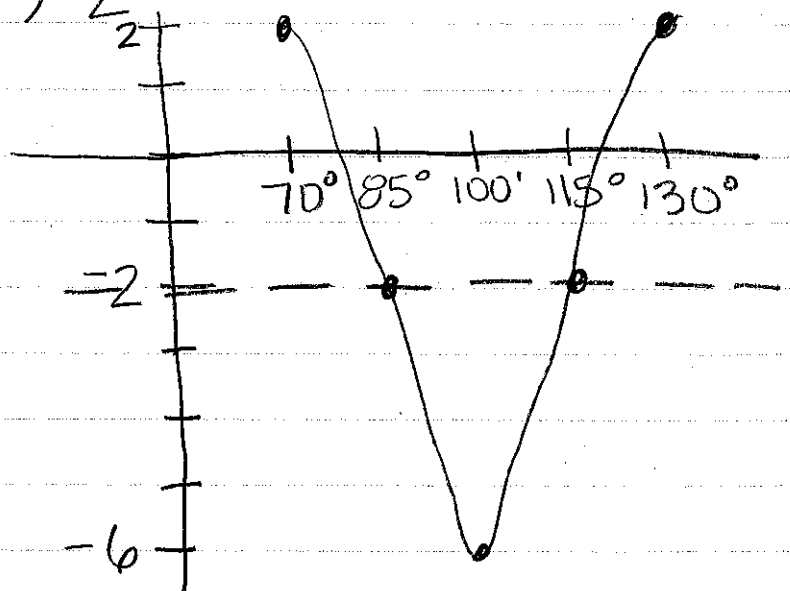
$$PS = 6\theta - 420 = 0$$

$$6\theta = 420$$

$$\theta = 70^\circ \rightarrow$$

$$d = [70^\circ, 130^\circ]$$

$$r = [-6, 2]$$



$$10. \quad y = 4 \sin(-3\theta - 99^\circ) - 1$$

$$y = 4 \sin(-(3\theta + 99^\circ)) - 1$$

$$y = -4 \sin(3\theta + 99^\circ) - 1$$

$$A = 4$$

Ref. x-axis

$$Pd = \frac{360}{3} = 120^\circ$$

$$VS = -1 \downarrow$$

$$PS = 3\theta + 99 = 0$$

$$3\theta = -99$$

$$\theta = -33^\circ$$

←

$$D: [-33^\circ, 87^\circ]$$

$$R: [-5, 3]$$

