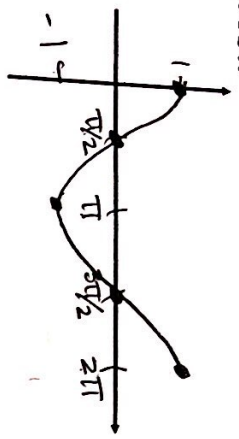


Cosine Graph with Dilations

$y = |\cos x$

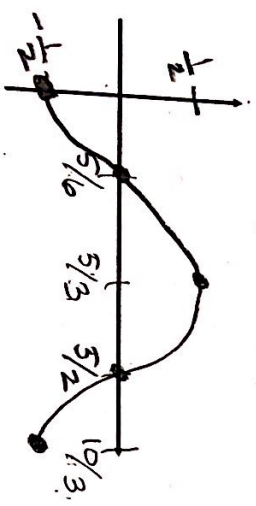


amplitude: 1  
 period:  $\frac{2\pi}{b} = 2\pi$   
 domain:  $[0, 2\pi]$   
 range:  $[-1, 1]$

In general:  $y = \pm a \cdot \cos(bx)$

reflect  $\swarrow$   
 x-axis  
 amplitude:  $|a|$   
 vertical  
 Dilation  
 Period  $\frac{2\pi}{b}$  or  $\frac{360^\circ}{b}$   
 horizontal  
 Dilation

2)  $y = -\frac{1}{2} \cos \frac{3\pi x}{5}$



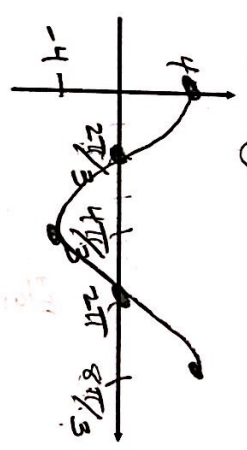
amplitude:  $|\frac{1}{2}| = \frac{1}{2}$   
 period:  $\frac{10}{3}$   
 domain:  $[0, \frac{10}{3}]$   
 range:  $[-\frac{1}{2}, \frac{1}{2}]$

Period:  $\frac{2\pi}{b} = \frac{2\pi}{3\pi/5} = 2\pi \cdot \frac{5}{3\pi} = \frac{10}{3}$

$\frac{5}{3} \cdot \frac{1}{2} = \frac{5}{6}$   
 $\frac{5}{6} + \frac{10}{6} = \frac{15}{6} = \frac{5}{2}$

$y = a \cos bx$  Radians

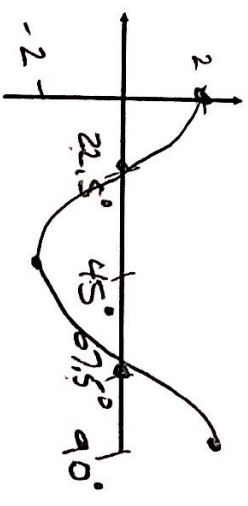
1)  $y = 4 \cos \frac{3x}{4}$



amplitude: 4  
 period:  $\frac{8\pi}{3}$   
 domain:  $[0, \frac{8\pi}{3}]$   
 range:  $[-4, 4]$

Period:  $\frac{2\pi}{b} = \frac{2\pi}{3/4} = 2\pi \cdot \frac{4}{3} = \frac{8\pi}{3}$

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



amplitude: 2  
 period:  $90^\circ$   
 domain:  $[0, 90^\circ]$   
 range:  $[-2, 2]$

Period:  $\frac{360^\circ}{b} = \frac{360^\circ}{4} = 90^\circ$