

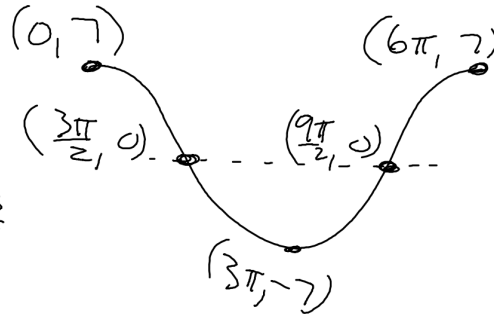
Graph one period of: $y = 7\cos(\frac{x}{3}) \rightarrow 7\cos(\frac{1}{3} \cdot x)$ $b = \frac{1}{3}$

Label the coordinates of all x-intercepts, maximums, and minimums.

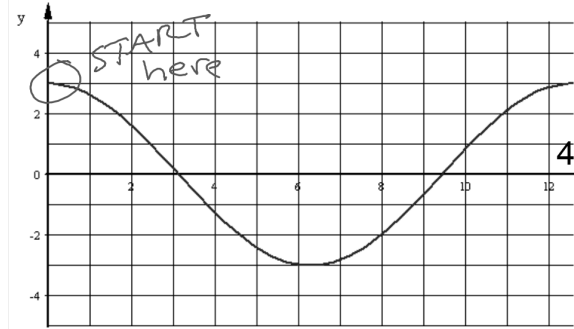
Amp = 7

midline = $y = 0$

period = $\frac{2\pi}{\frac{1}{3}} = 2\pi \cdot \frac{3}{1}$
 $= 6\pi$



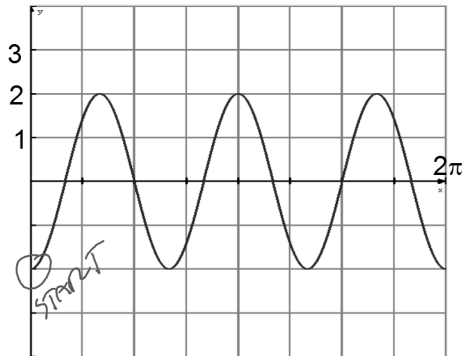
Write the equation of this Cosine Function.



Amp = 3
 midline: $y = 0$
 phase shift: NONE
 period = 4π
 $b = \frac{2\pi}{4\pi} = \frac{1}{2}$

$y = 3\cos(x/2)$

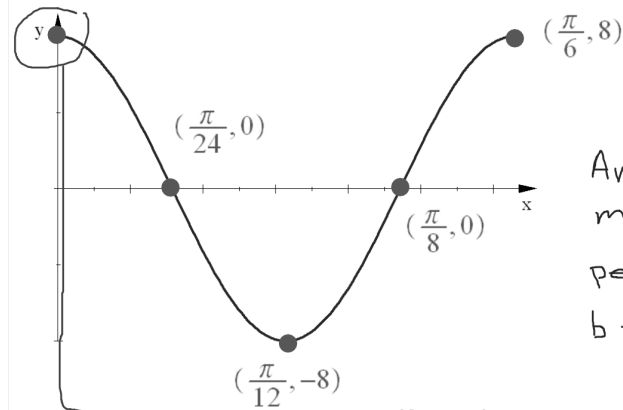
Write the equation of this Cosine Function.



Amp = 2
 midline: $y = 0$
 phase shift: NONE
 period = $\frac{2\pi}{3}$
 $b = \frac{2\pi}{\frac{2\pi}{3}} = 2\pi \cdot \frac{3}{2\pi}$
 $b = 3$

$y = -2\cos 3x$

Write the equation of this Cosine Function:

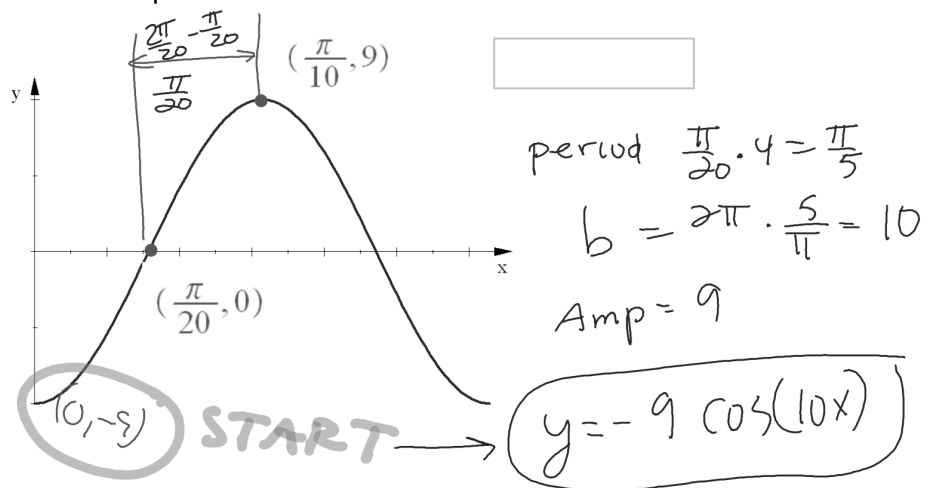


Amp = 8
 midline $y = 0$
 period = $\frac{\pi}{6}$
 $b = 2\pi \cdot \frac{6}{\pi} = 12$

$y = 8\cos(12x)$

If start here
 there is no
 Phase Shift

Write the equation of this Cosine Function:



You can now do Hwk #33

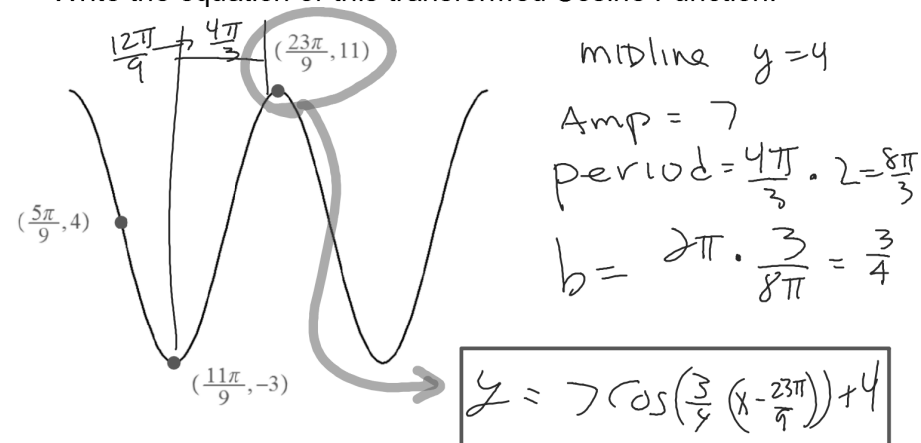
Sec 13-5

Practice Sheet

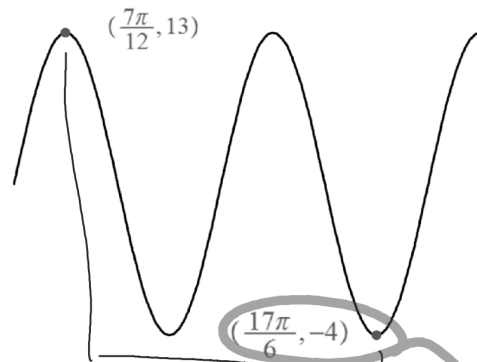
$$y = a \cos(b(x \pm h)) \pm k$$

- $a \rightarrow$ Vert stretch or shrink - Amplitude
Also x-axis reflection if negative
- $b \rightarrow$ Horiz stretch or shrink Period = $2\pi/b$ and $b = 2\pi/\text{Period}$
- $h \rightarrow$ Phase Shift - Horiz translation - the starting point
- $k \rightarrow$ Vertical translation - Equation of the Midline

1. Write the equation of this transformed Cosine Function.



2. Write the equation of this transformed Cosine Function.



$$\text{Amplitude} = \frac{13 - (-4)}{2} = \frac{17}{2} = 8.5$$

$$\text{midline} = \frac{13 + (-4)}{2} = \frac{9}{2} = 4.5$$

$$\text{period} = \frac{9\pi}{\frac{4}{3}} = \frac{9\pi}{4} \cdot \frac{2}{3} = \frac{3\pi}{2}$$

$$b = 2\pi \cdot \frac{2}{3\pi} = \frac{4}{3}$$

$$y = -8.5 \cos\left(\frac{4}{3}\left(x - \frac{17\pi}{6}\right)\right) + 4.5$$