Notes

Friday, January 29, 2016 5:45 AM

Precalculus
4.4C – Writing Equations from Graphs

Name:
Period:

Amplitude

Start or phase shift

$y = \boxed{a} \cos \text{ or } \sin \boxed{b}(x - \boxed{h}) + \boxed{k}$

B - value

Sinusoidal Axis

$-a$ → Reflections

$-b$ → Reflections

Per/Freq

On the same graph, sketch two periods of $y = \sin x$ and $y = \cos\left(x + \frac{\pi}{2}\right)$. What do you notice??

Blue

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

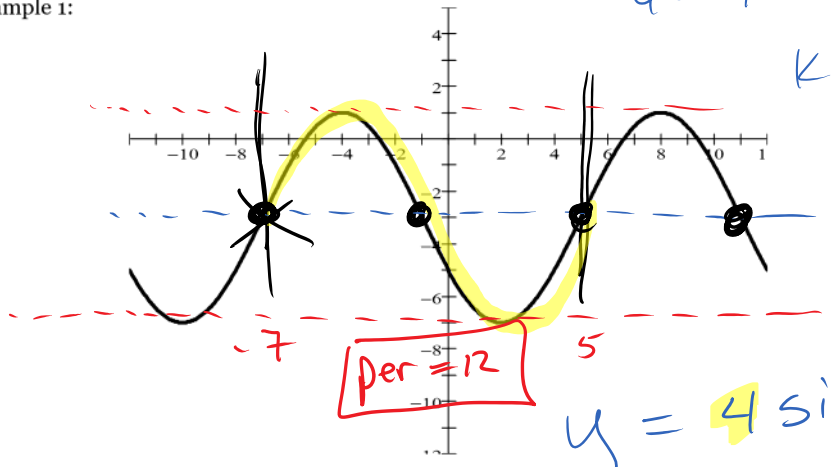
$y = -\sin x$

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

-2π $-\pi$ π 2π

Writing Equations from Graphs

Example 1:



$a = 4$

$k = -3$

Per: 12

$12 = \frac{2\pi}{b}$ $b = \frac{2\pi}{12}$

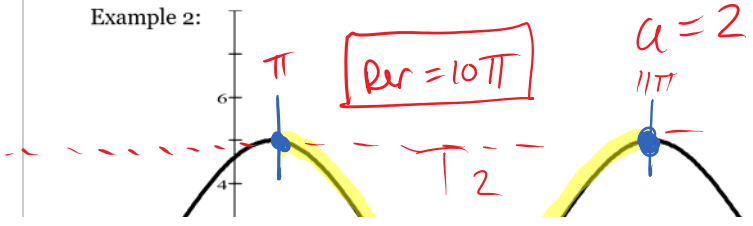
-7 5

Per = 12

$y = 4\sin\frac{\pi}{6}(x + 7) - 3$

$\sin(x - 5)$

Example 2:



π

Per = 10π

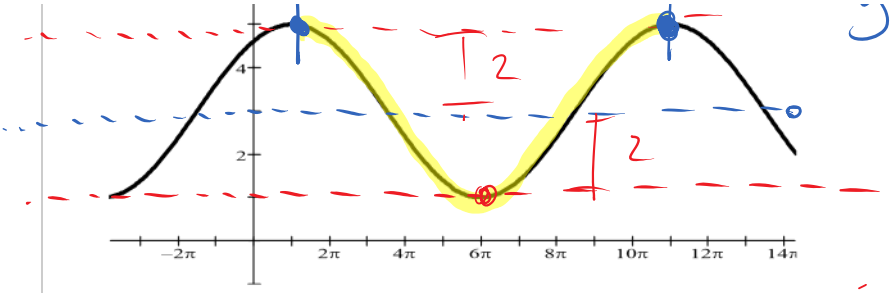
$a = 2$

11π

T_2

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

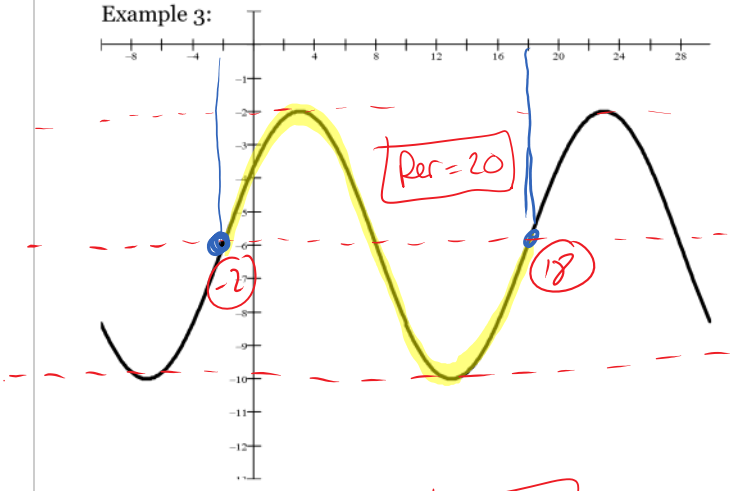
$\frac{2\pi}{}$



$10\pi = \frac{2\pi}{B}$

$B = \frac{1}{5}$

Example 3:

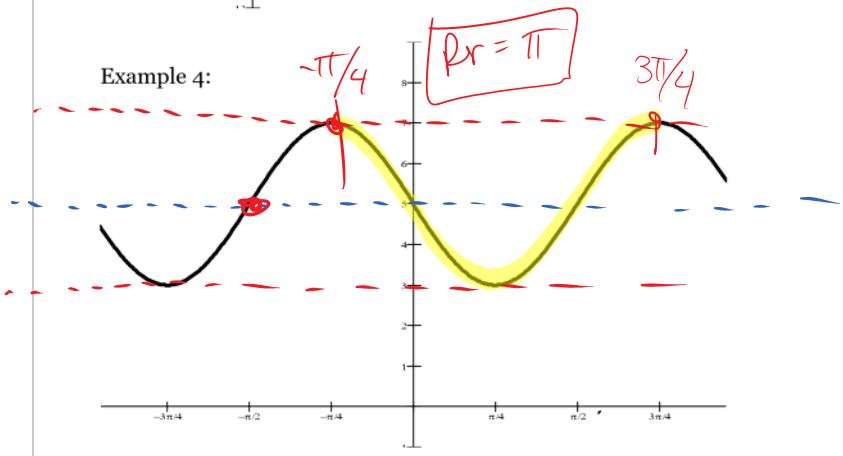


$20 = \frac{2\pi}{b}$

$b = \frac{\pi}{10}$

$y = 4\sin\frac{\pi}{10}(x+2) - 6$

Example 4:



$y = 2\cos 2\left(x + \frac{\pi}{4}\right) + 5$

$\pi = \frac{2\pi}{b}$

$b = 2$