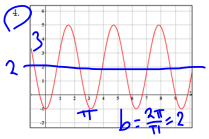
Transforming Sine & Cosine (5.2) p251 day 3

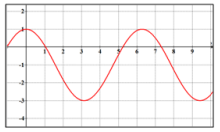
Career clock Biologic clock

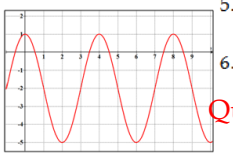
How do you solve that problem?

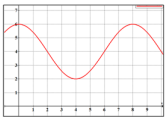
Answers

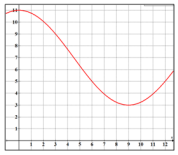
1. $y = 2cos2x + 1$
2. $y = 2cosx - 1$
3. $y = 3cos\frac{\pi}{2}x - 2$
4. $y = -3cos2x + 2$
5. $y = 2cos\frac{\pi}{4}x + 4$
6. $y = 4cos0.35x + 7$









Quiz tomorrow

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What is the period of The Song That Never Ends? 33 words

This is the song that never ends. It just goes on and on my friends. Some people started singing it not knowing what it was. And they'll continue singing it forever just because This is the song that never ends. It just goes on and on my friends. Some people started singing it not knowing what it was. And they'll continue singing it forever just because This is the song that never ends. It just goes on and on my friends. Some people started singing it not knowing what it was. And they'll continue singing it forever just because This is the song that never ends. It just goes on and on my friends. Some people started singing it not knowing what it was. And they'll continue singing it forever just because This is the song that never ends. It just goes on and on my friends. Some people started singing it not knowing what it was. And they'll continue singing it forever just because

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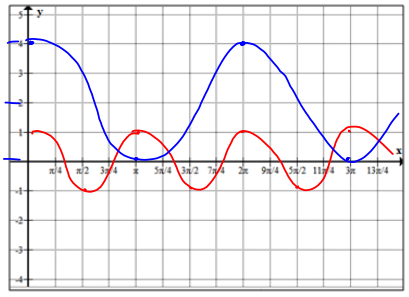
Work on Graphing Practice Sheet



1. $y = \cos 2x$

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

2. $y = 2\cos x + 2$

per = $2\pi$

Transforming Sine & Cosine (5.2) p251 day 3

To graph cosine

1. Find the period.
2. Use d to get the midline. Mark a tick beside the y axis.
3. Count up 'a' from the midline to get the max. Mark a point on the y axis.
4. Count down 'a' from the midline to get the min. Mark a tick beside the y axis.
5. Along the max line, mark a point at the end of 1 period.
6. Mark a point halfway between the start and end, along the min line.
7. Join dots to make the graph.

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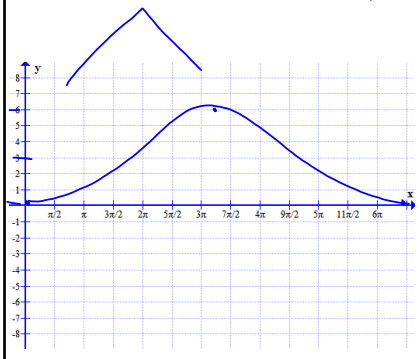

3. $y = 4\cos 0.5x - 1$

4. $y = 5\cos 1.5x - 3$

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

5. $y = -3\cos 0.3x + 3$

$\frac{2\pi}{0.3}$ $\frac{20\pi}{3}$ 21

Transforming Sine & Cosine (5.2) p251 day 3

ex1: Determine the horizontal phase shift and the vertical displacement.

c d

$y = \sin x + 1$ c = 0, d = 1

$y = \sin\left(x - \frac{\pi}{4}\right)$ c = $\frac{\pi}{4}$, d = 0

$y = \cos\left(x + \frac{\pi}{2}\right) - 3$ c = $-\frac{\pi}{2}$, d = -3

Note: if $y = a\sin b(x - c) + d$ then

| | |
|---|---|
| a is the vertical stretch | amplitude is \|a\| |
| b is the horizontal compression | period is $\frac{2\pi}{b}$ |
| c is the horizontal phase shift | shift of c to the right |
| d is the vertical displacement | move d up |

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ex2: State the amplitude, period, shift, displacement.

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

amp. = 6
per. = $\frac{2\pi}{3}$
shift = $\frac{\pi}{3}$
disp. = 0

$f(x) = 4\cos 2(x + \pi) - 1$

amp = 4
per = $\pi$
shift = $-\pi$
disp = $-1$

give the mappings for each

$(x, y) \to \left(\frac{1}{3}x + \frac{\pi}{3}, 6y\right)$

$(x, y) \to \left(\frac{1}{2}x - \pi, 4y - 1\right)$

5

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HW: p250 #5, 6

Quiz tomorrow