Conditions

the graph of -2sin(2x=π/2)+3

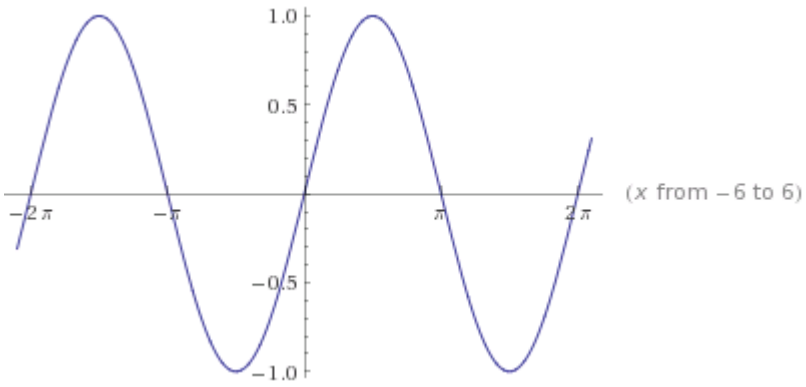
Please show steps

Solution

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

At first, let's consider the graph of a basic function:

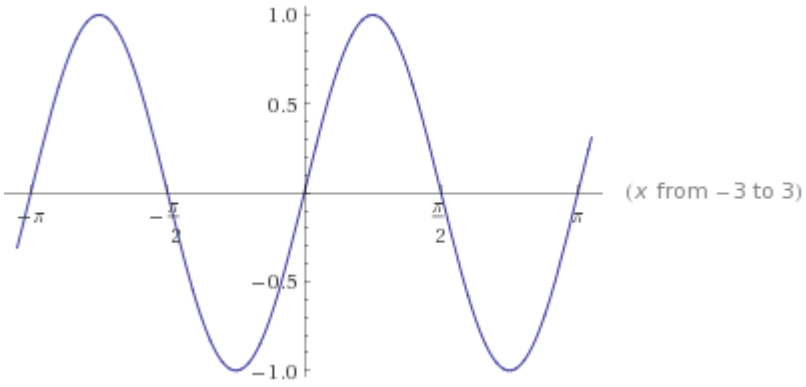
$$y = sinx$$



Then, let's construct a graph

$$y = \sin(\mathbf{2}x)$$

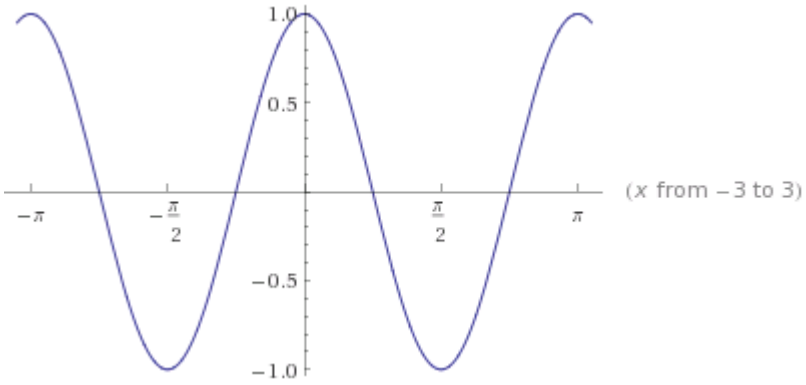
Which is **2** times compressed compared to previous.



The next step is to construct:

$$y = \sin(2x + \frac{\pi}{2})$$

The difference between this one and previous one is in shift to the left for $\frac{\pi}{2}$.

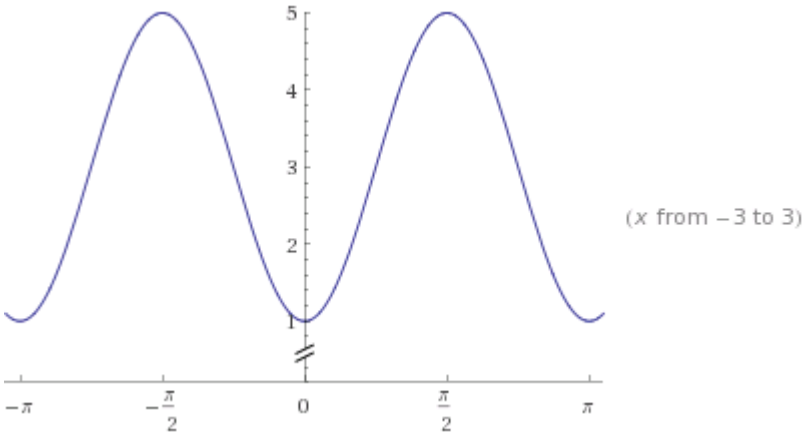


The last step is to make a final graph:

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

“-2” means that our graph become 2 times larger in y-axes (from [-1;1] to [-2;2]) and “-“ means that the graph is inverted relative to x-axes.

“+3” means that the graph is 3 points higher than previous:



Or, for x from -10 to 10: