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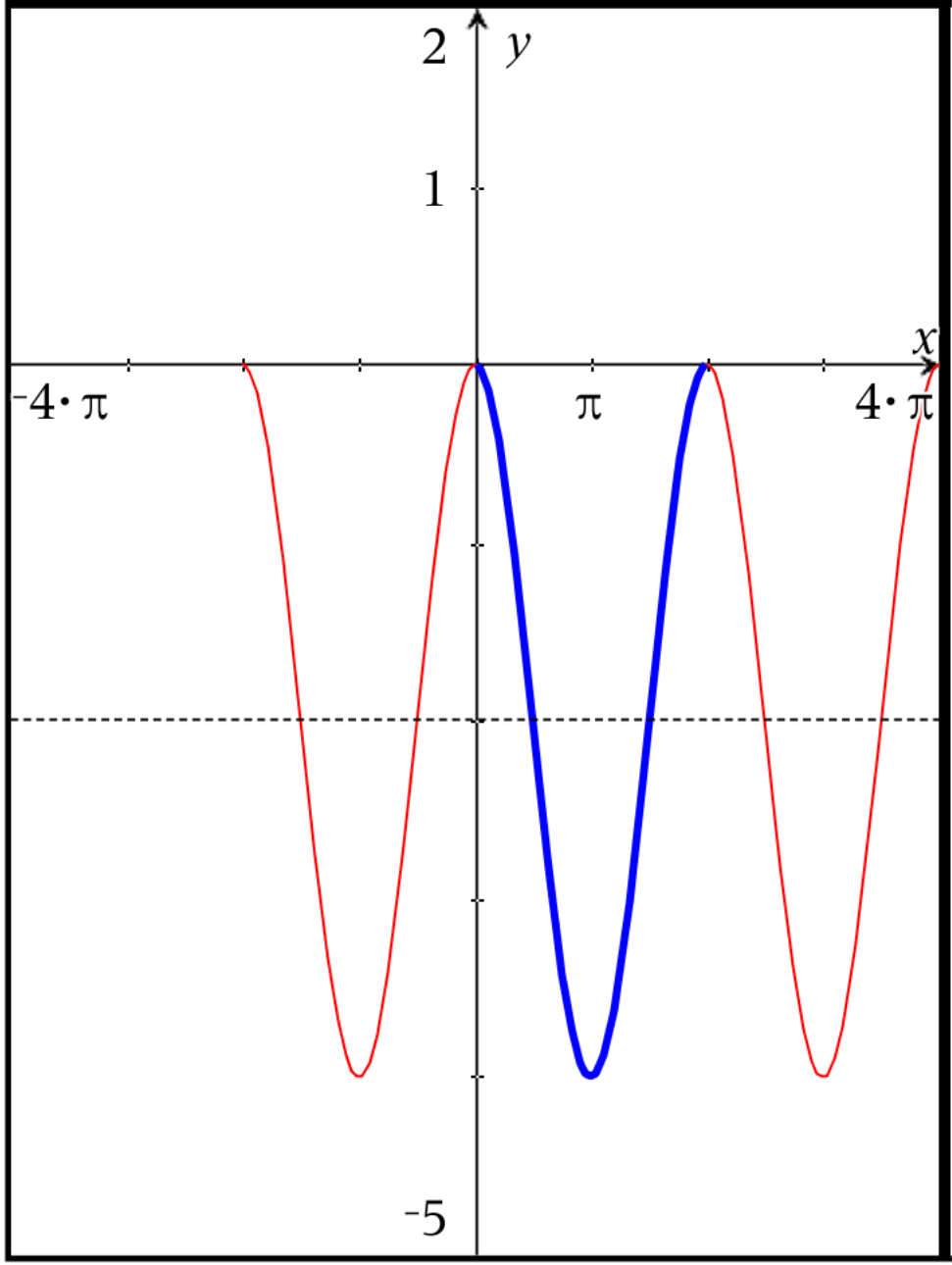


$y=a\cdot\cos(x)+d$

ONE PERIOD = $[0, 2\cdot\pi)$

Range $[-3, 1]$

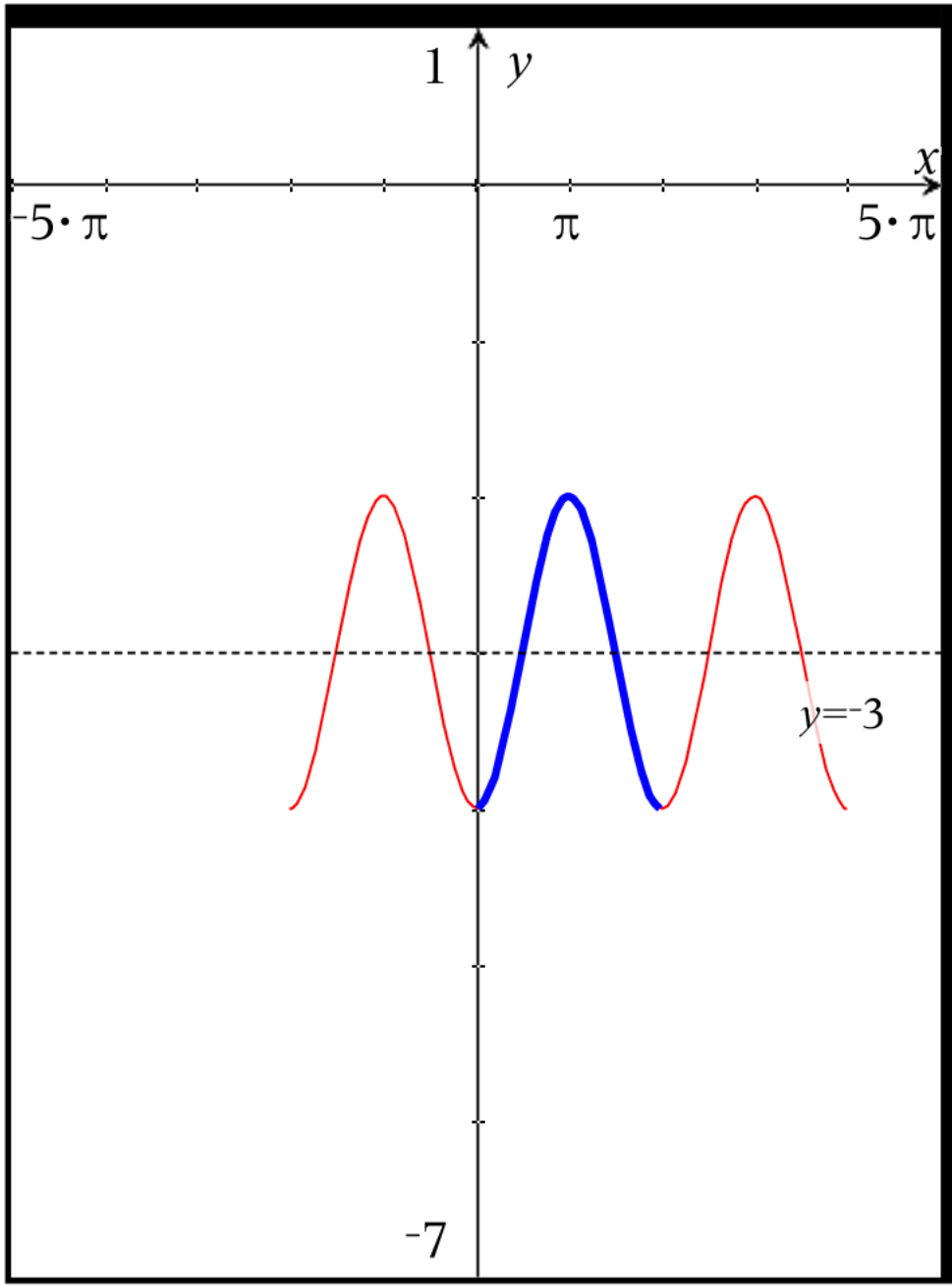
This graph is a VERTICAL STRETCH

(Range doubled)

This graph is a VERTICAL SHIFT DOWN 2

This means ONE VERSION of this graph is

$y=2\cos(x)-2$



$y=a\cdot\cos(x)+d$

ONE PERIOD = $[0, 2\cdot\pi)$

Range $[-4, -2]$

This graph is a VERTICAL REFLECTION over

$y = -3$

This graph is a VERTICAL SHIFT DOWN 3 units

This means ONE VERSION of this graph is

$y=-1\cos(x)-3$

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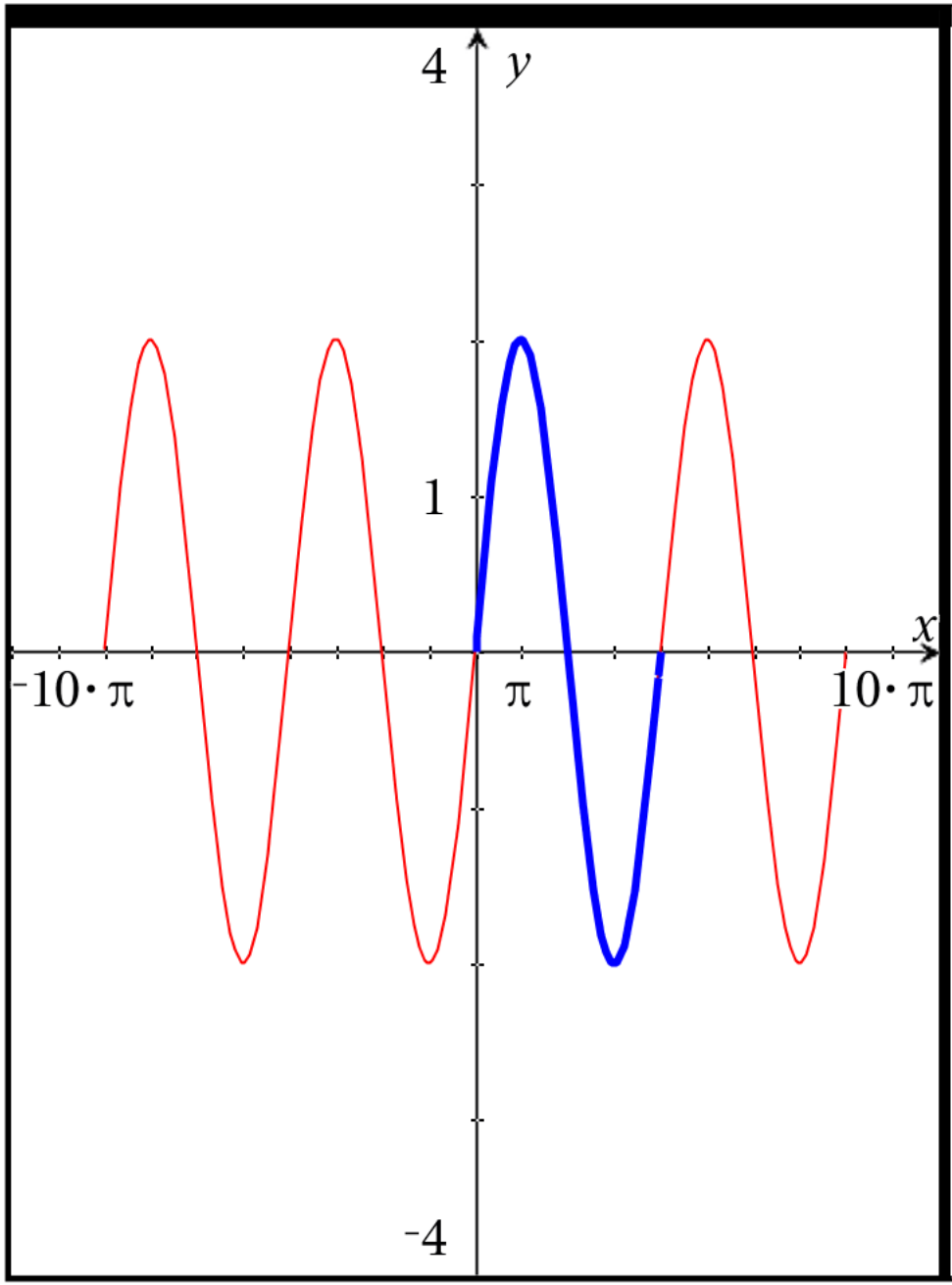


$y=a\cdot\sin(bx+c)=a\cdot\sin\left(b\left(x+\frac{c}{b}\right)\right)$

ONE PERIOD = $[0,4\cdot\pi)$

Range $[-2,2]$

This graph is a VERTICAL STRETCH

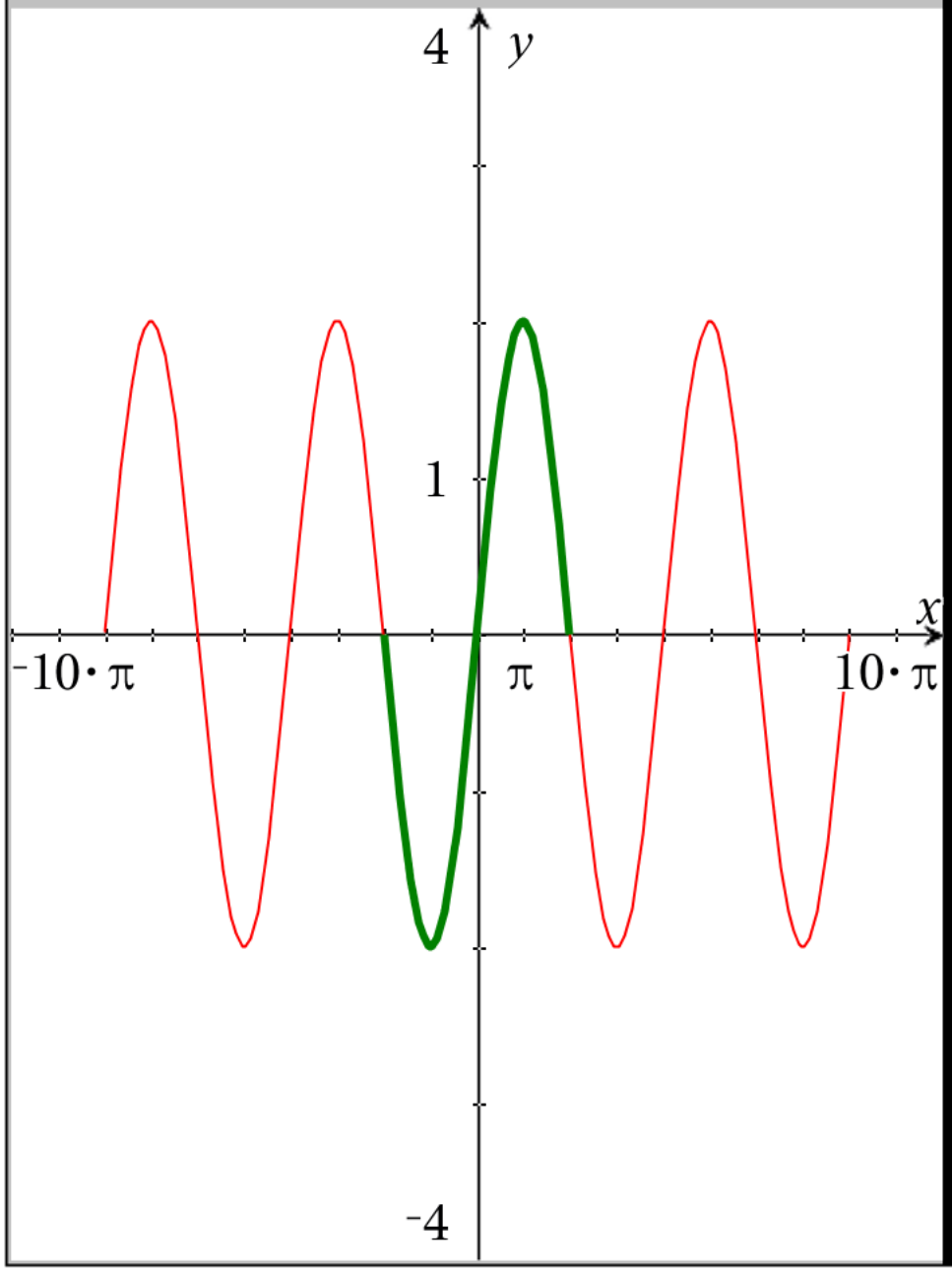
(range doubled)

This graph is a HORIZONTAL STRETCH

(period doubled)

This means ONE VERSION of this graph is

$y=2\sin\left(\frac{1}{2}x\right)$



$$y=a\cdot\sin(bx+c)=a\cdot\sin\left(b\left(x+\frac{c}{b}\right)\right)$$

ONE PERIOD = $[-2\cdot\pi, 2\cdot\pi)$

Range $[-2, 2]$

This graph is a VERTICAL STRETCH

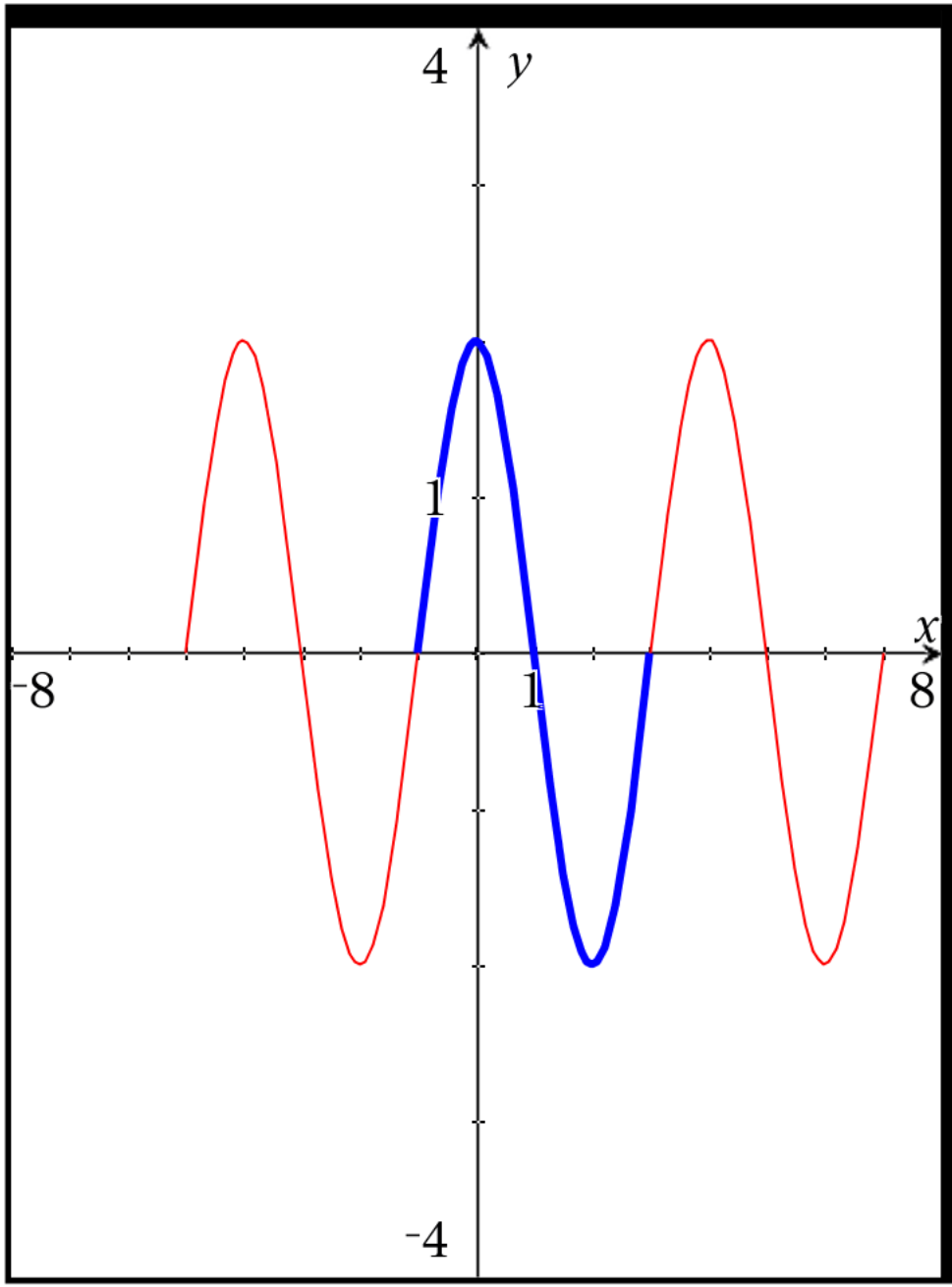
(range doubled)

This graph is a VERTICAL Reflection

This graph is a HORIZONTAL SHIFT LEFT $2\cdot\pi$

This means ANOTHER VERSION of this graph is

$$y=-2\cdot\sin\left(\frac{1}{2}\cdot(x+2\cdot\pi)\right)=-2\cdot\sin\left(\frac{1}{2}\cdot x+\pi\right)$$



$y=a\cdot\sin(bx+c)=a\cdot\sin\left(b\left(x+\frac{c}{b}\right)\right)$

ONE PERIOD = $[-1,3)$

Range $[-2,2]$

This graph is a VERTICAL STRETCH

(range doubled)

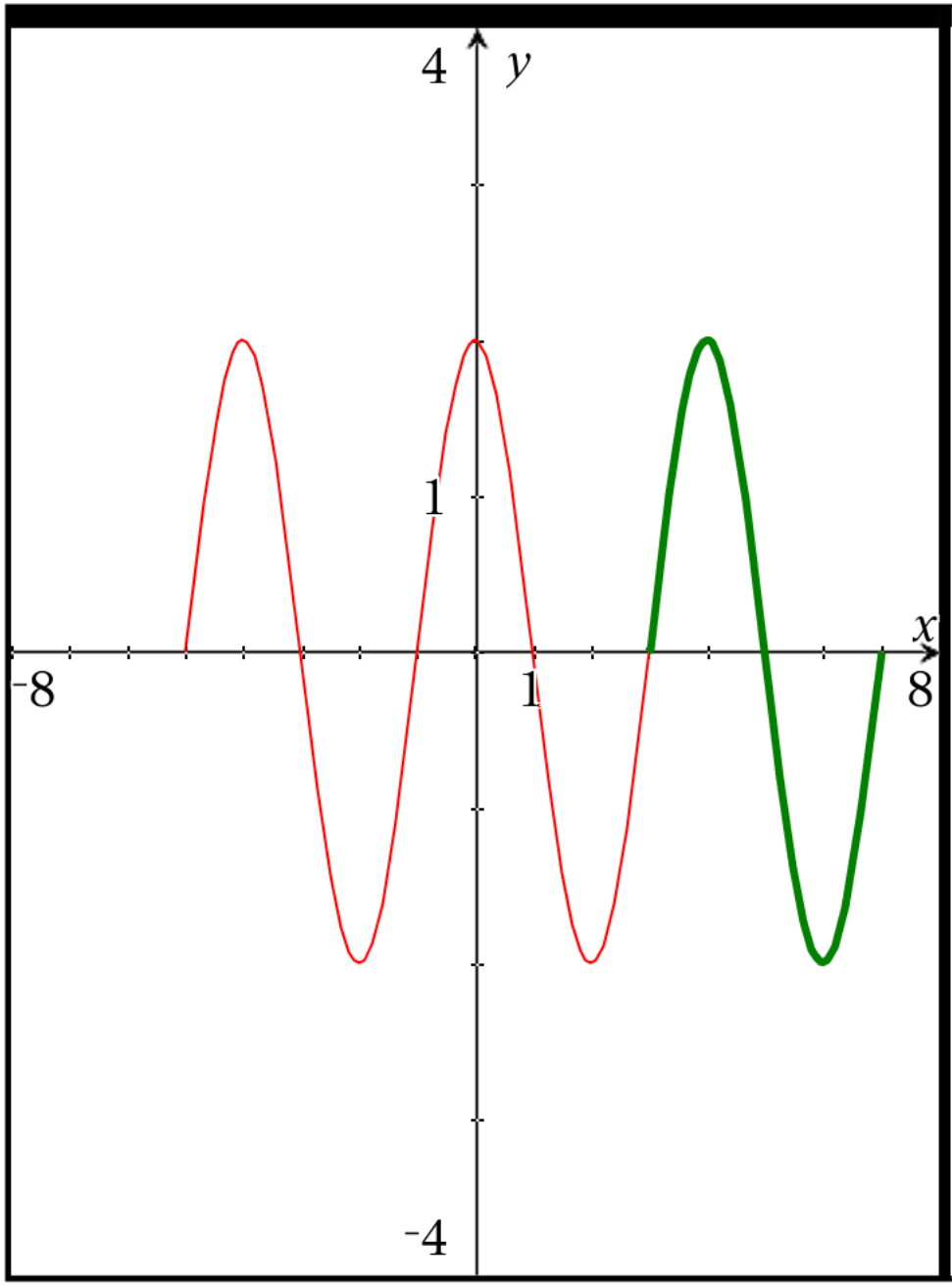
This graph is a HORIZONTAL COMPRESSION

(period is NOW 4 units < $2\cdot\pi$ units)

This graph is a HORIZONTAL SHIFT LEFT 1 units

This means ONE VERSION of this graph is

$y=2\cdot\sin\left(\frac{\pi}{2}\cdot(x+1)\right)=2\cdot\sin\left(\frac{\pi}{2}\cdot x+\frac{\pi}{2}\right)$



$$y=a\cdot\sin(bx+c)=a\cdot\sin\left(b\left(x+\frac{c}{b}\right)\right)$$

ONE PERIOD = $[-1,3)$

Range $[-2,2]$

This graph is a VERTICAL STRETCH

(range doubled)

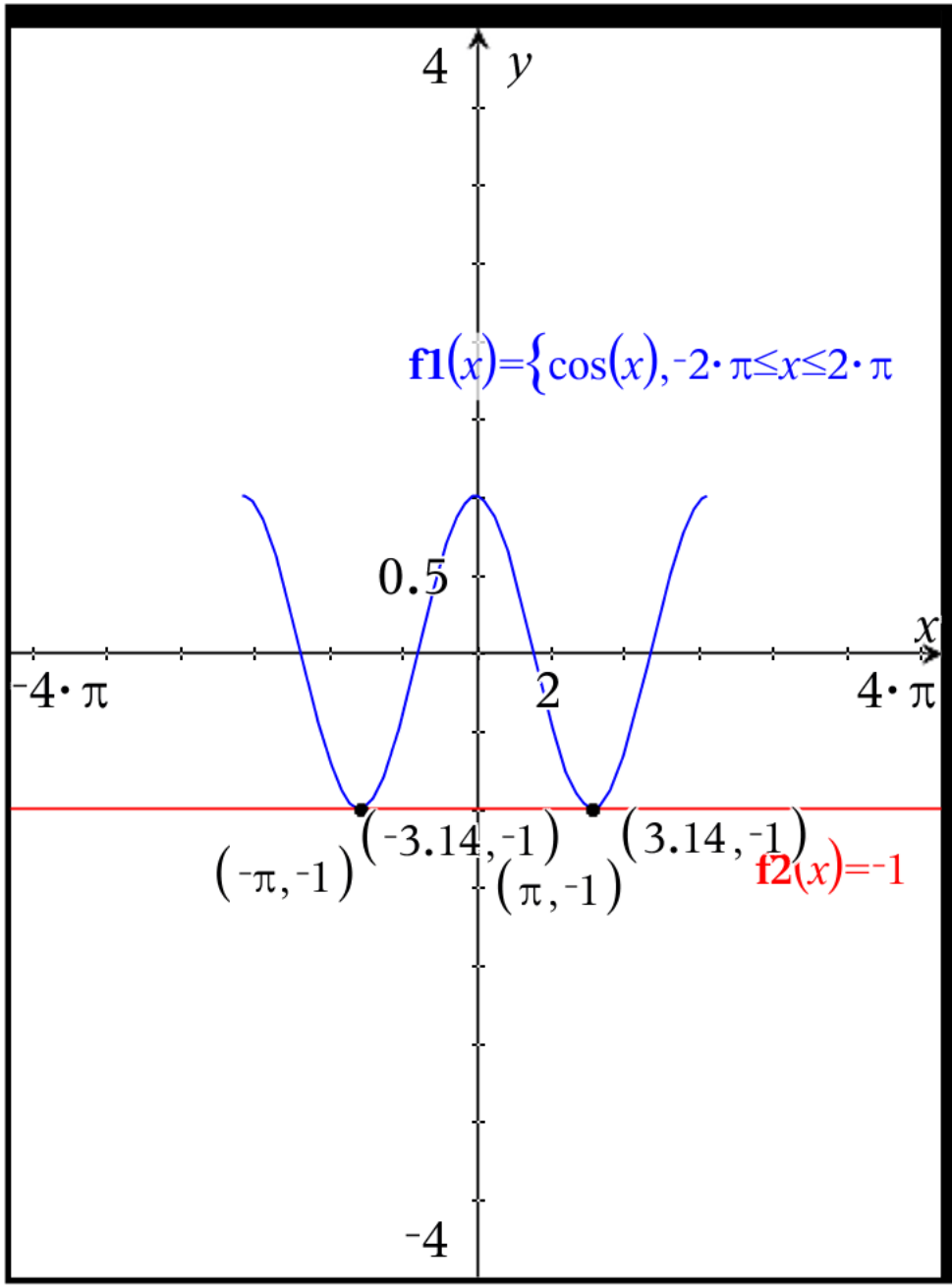
This graph is a HORIZONTAL COMPRESSION

(period is NOW 4 units < $2\cdot\pi$ units)

This graph is a HORIZONTAL SHIFT RIGHT 3units

This means ANOTHER VERSION of this graph is

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



This question is asking us to solve the trigonometric system over $[-2\pi, 2\pi]$

y = cos(x)

y=−1

(you really don't need a graphing calculator to do this, you should not need any calculator if you know your chart and reference angles)

−1 =cos(x)

$\cos^{-1}(-1)$ =x

π =x (remember to switch your calculator to radian mode)

NOW we can reference back to x = $-\pi$

This question is asking us to solve the trigonometric system over $[-2\pi, 2\pi]$

$y = \sin(x)$

$y = \frac{\sqrt{3}}{2}$

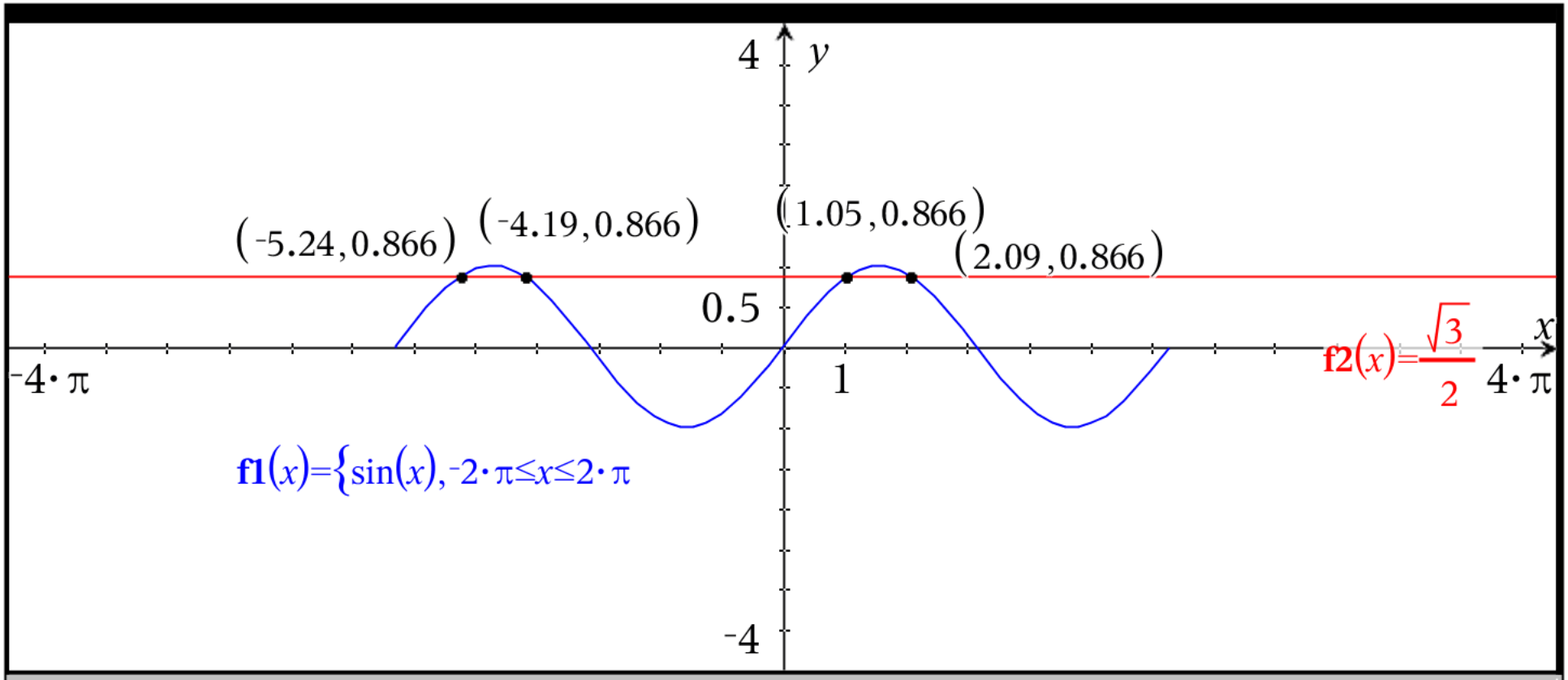
(you really don't need a graphing calculator to do this, you should not need any calculator if you know your chart and reference angles)

$\frac{\sqrt{3}}{2} = \sin(x)$

$\sin^{-1}\left(\frac{\sqrt{3}}{2}\right) = x$

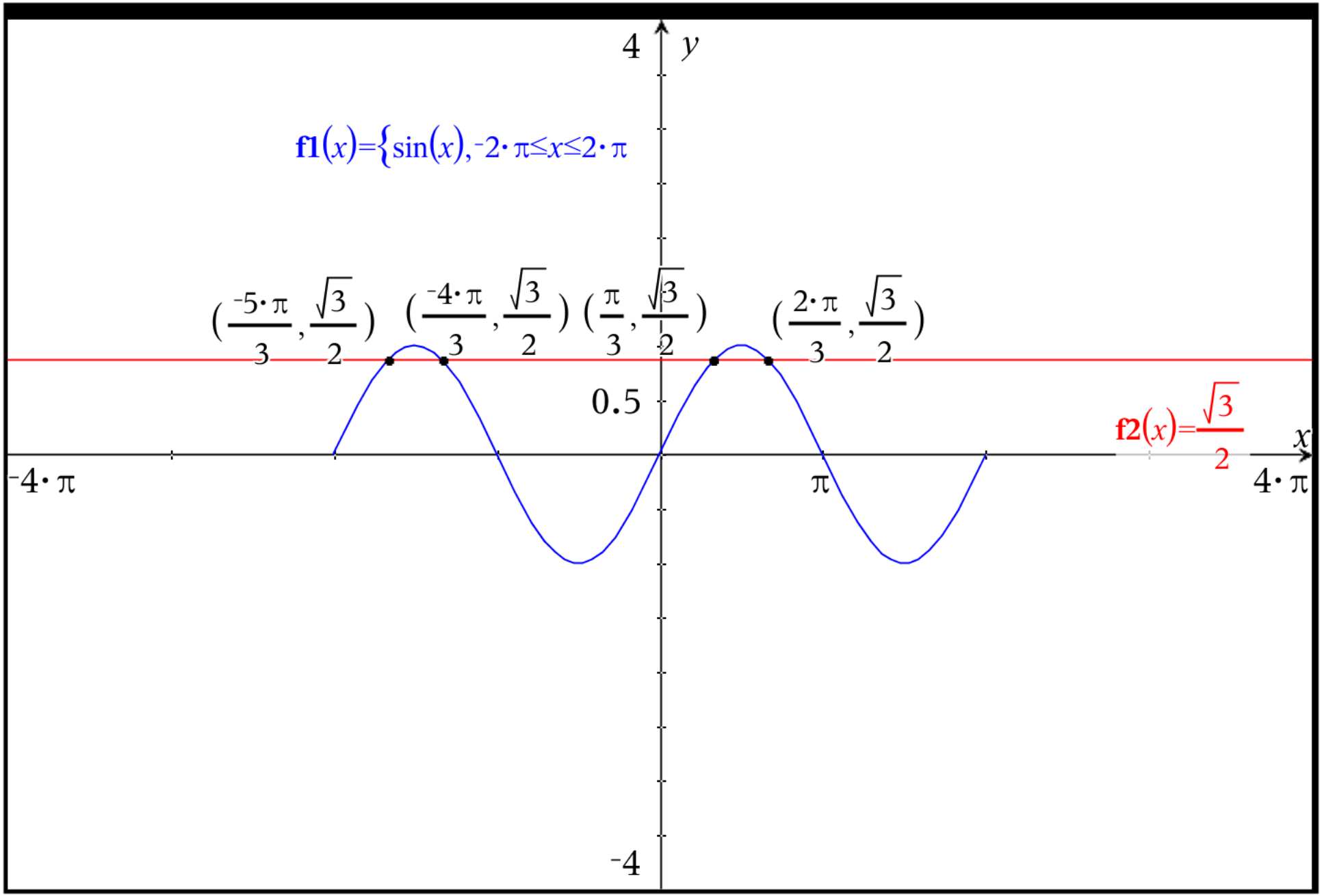
$\frac{\pi}{3} = x$ (remember to switch your calculator to radian mode)

NOW we can reference to $x = \frac{2\pi}{3}$, $x = \frac{-4 \cdot \pi}{3}$, and $x = \frac{-5 \cdot \pi}{3}$



Note $\frac{\sqrt{3}}{2.} \approx 0.866025$ Note: $\frac{\pi}{3.} \approx 1.0472$ Note: $\frac{2\cdot\pi}{3.} \approx 2.0944$

Note: $\frac{-4\cdot\pi}{3.} \approx -4.18879$ Note: $\frac{5\cdot\pi}{3.} \approx 5.23599$


4
y
f1(x)={sin(x), -2·π≤x≤2·π
(-5·π/3, √3/2)
(-4·π/3, √3/2)
(π/3, √3/2)
(2·π/3, √3/2)
0.5
f2(x)=√3/2
x
-4·π
π
4·π
-4