

Test 1 over all of Chapter 1, Wednesday

EDBH 131 or 133 (or both)

Arrangements need to be made to reserve the room and maintain distance.

Bring Scientific (Not Graphing) calculator.

1-page cheat sheet permitted

$g(x) = \sin(5x + \pi)$

$f(x) = \sin(x) \rightarrow$

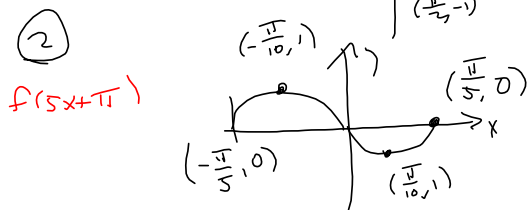
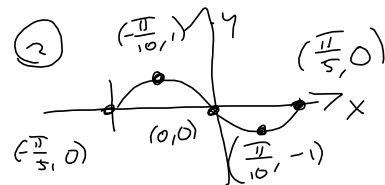
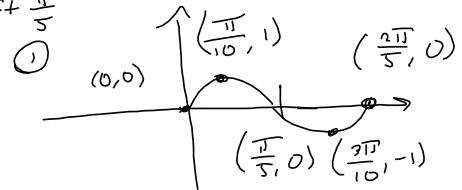
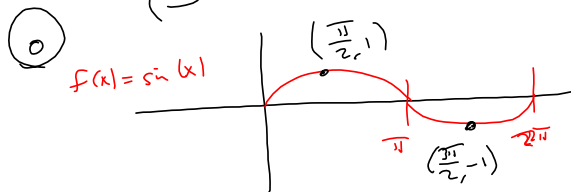
$5 \cdot (x + \frac{\pi}{5})$

$g(x) = f(5x + \pi)$

$5x + \pi = 5(x + \frac{\pi}{5})$

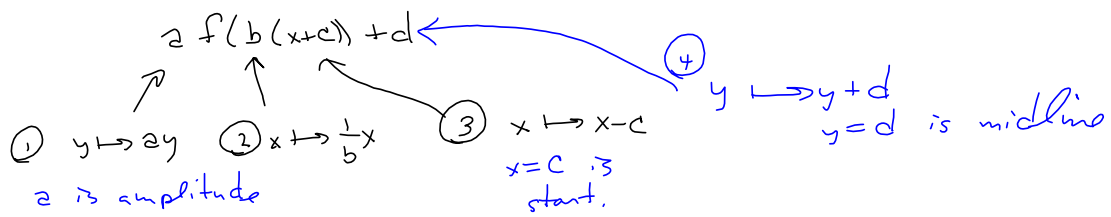
- ① $f(x + \pi)$ left π
- ② $f(5x + \pi)$ $x \mapsto \frac{1}{5}x$

- ① $f(5x)$ $x \mapsto \frac{1}{5}x$
- ② $f(5(x + \frac{\pi}{5}))$ $x \mapsto x - \frac{\pi}{5}$

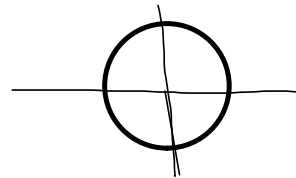
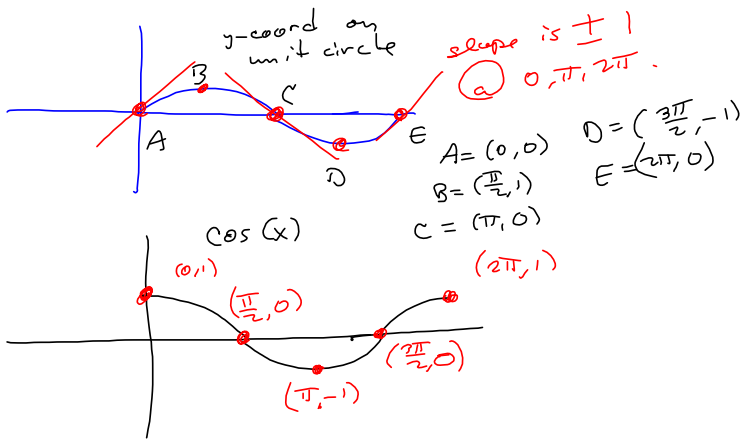
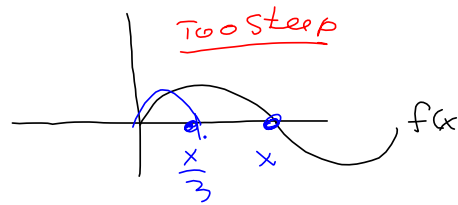


$\frac{\pi}{10} - \frac{\pi}{5} = \frac{\pi}{10} - \frac{2\pi}{10} = -\frac{\pi}{10}$

$\frac{3\pi}{10} - \frac{2\pi}{10} = \frac{\pi}{10}$

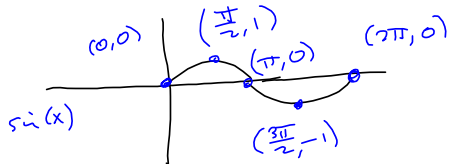


$f(3x)$

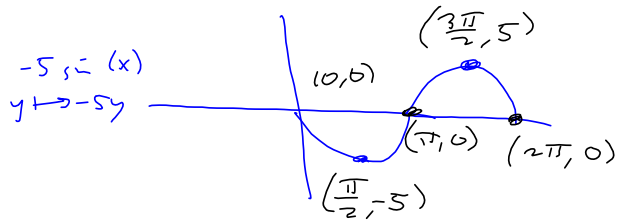


$$-5 \sin\left(\frac{\pi}{11}x - \frac{7\pi}{11}\right) + 11$$

$$= -5 \sin\left(\frac{\pi}{11}(x+7)\right) + 11$$



$$\frac{\frac{7\pi}{11}}{\frac{\pi}{11}} = \frac{7\pi}{11} \cdot \frac{11}{\pi} = 7$$

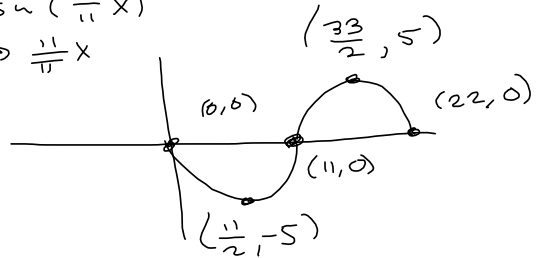


$$-5 \sin\left(\frac{\pi}{11}x\right)$$

$$x \mapsto \frac{\pi}{11}x$$

$$\frac{3\pi}{2} \cdot \frac{11}{\pi} = \frac{33}{2}$$

$$\frac{\pi}{2} \cdot \frac{11}{\pi} = \frac{11}{2}$$

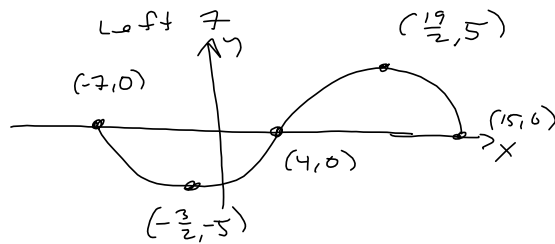


$$-5 \sin\left(\frac{\pi}{11}(x+7)\right)$$

$$\text{Left } 7$$

$$\frac{11}{2} - \frac{14}{2}$$

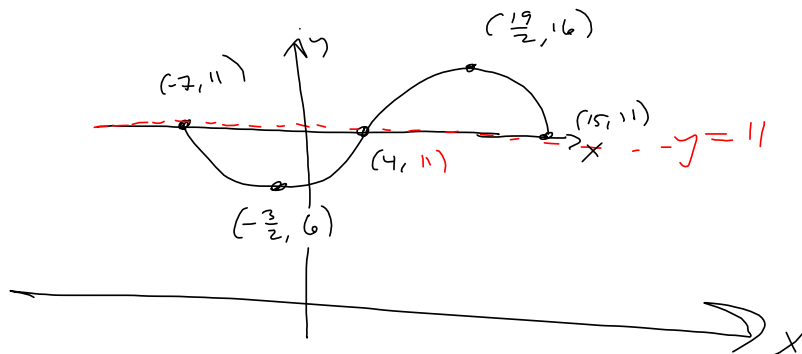
$$\frac{33}{19} - \frac{14}{19}$$



$$-5 \sin\left(\frac{\pi}{11}(x+7)\right) + 11$$

$$\text{up } 11$$

$$y \mapsto y + 11$$



$$-5 \sin\left(\frac{\pi}{11}x - \frac{7\pi}{11}\right) + 11$$

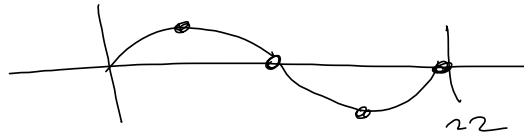
$y=11$

$\sin x$ has period 2π

$$\sin\left(\frac{\pi}{11}x\right)$$

$$\frac{\pi}{11}x = 2\pi$$

$$x = 2\pi \cdot \frac{11}{\pi} = 22 = \text{period!}$$



$$= -5 \sin\left(\frac{\pi}{11}(x+7)\right) + 11$$

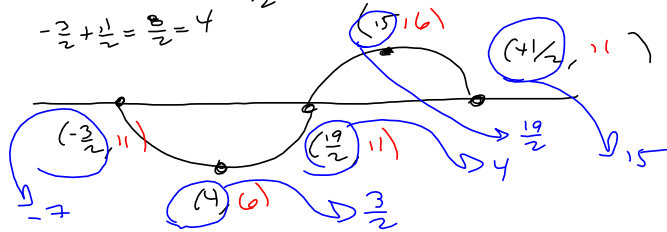
start @ $x = -7$

$$\frac{22}{4} = \frac{11}{2} = \text{step size}$$

$$-7 + \frac{11}{2} = \frac{-14 + 11}{2} = -\frac{3}{2}$$

$$-\frac{3}{2} + \frac{11}{2} = \frac{8}{2} = 4$$

You're shifted incorrectly
(one step off)



$$4 + \frac{11}{2} = \frac{8 + 11}{2} = \frac{19}{2}$$

$$\frac{19 + 11}{2} = \frac{30}{2} = 15$$

$$15 + \frac{11}{2} = \frac{30 + 11}{2} = \frac{41}{2}$$

y-coords?

$-5 = \text{amplitude} = \text{how far up \& down from midline, } y=11$

$$-5 \sin\left(\frac{\pi}{11}x - \frac{7\pi}{11}\right) + 11 = -5 \sin\left(\frac{\pi}{11}(x+7)\right) + 11$$

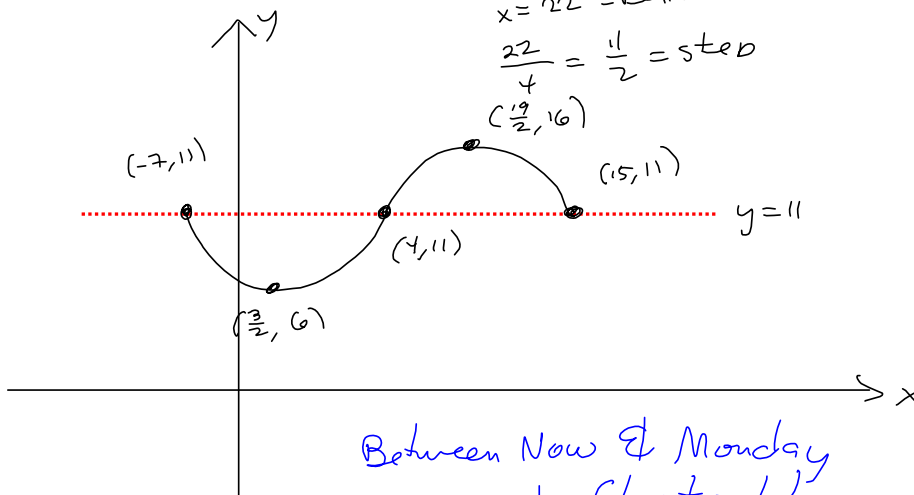
$a = -5$
Flip

start $x = -7$ $d = 11$ midline

$$\frac{\pi}{11}x = 2\pi$$

$$x = 22 = \text{Period}$$

$$\frac{22}{4} = \frac{11}{2} = \text{step}$$



Between Now & Monday
use out Chapter 1!

S1.8 is applications

↳ Get rolling!

