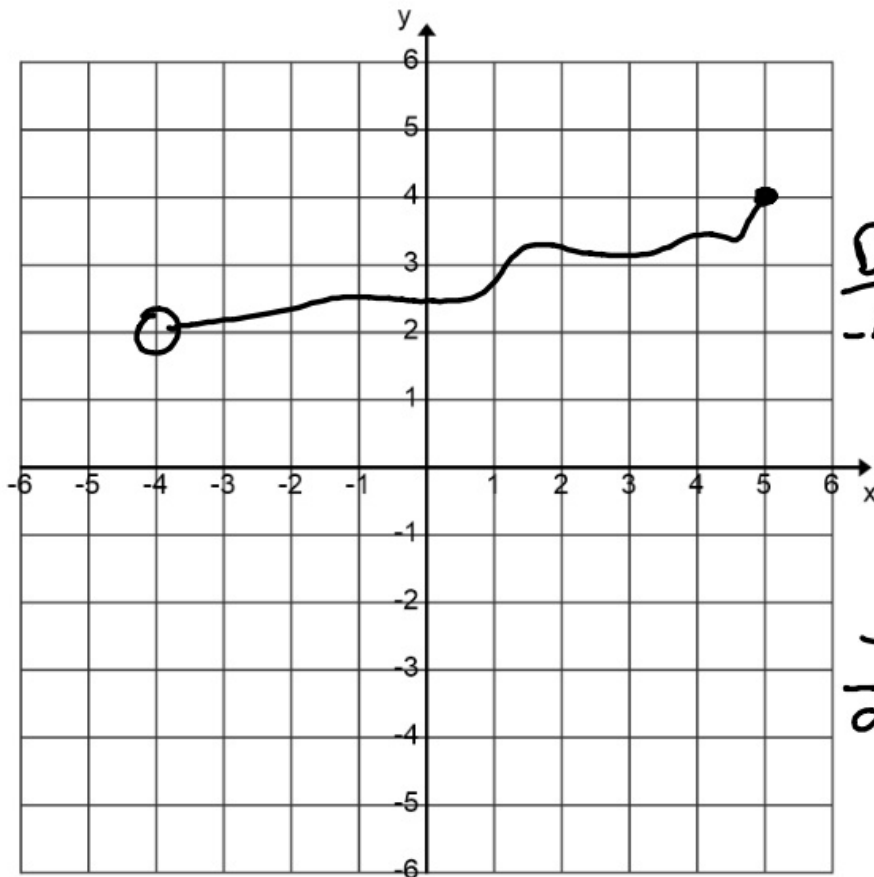


10-8-19 1<sup>st</sup> Trig

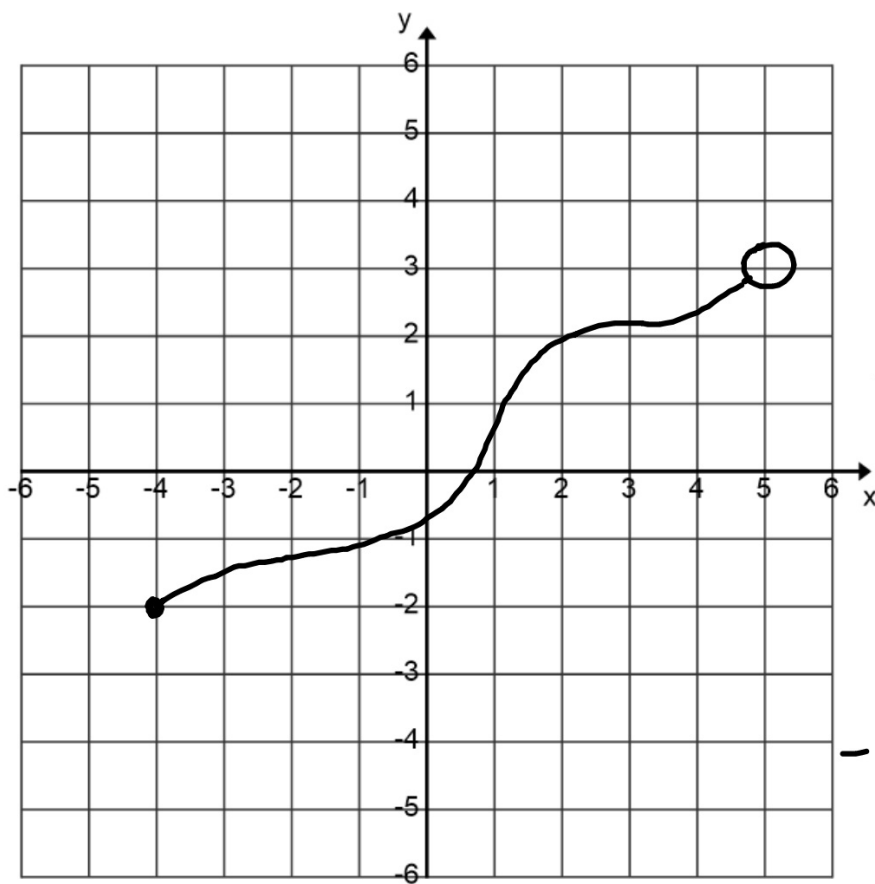
$$f(x) = \sqrt{\quad} \geq 0$$

$$\quad \neq 0$$



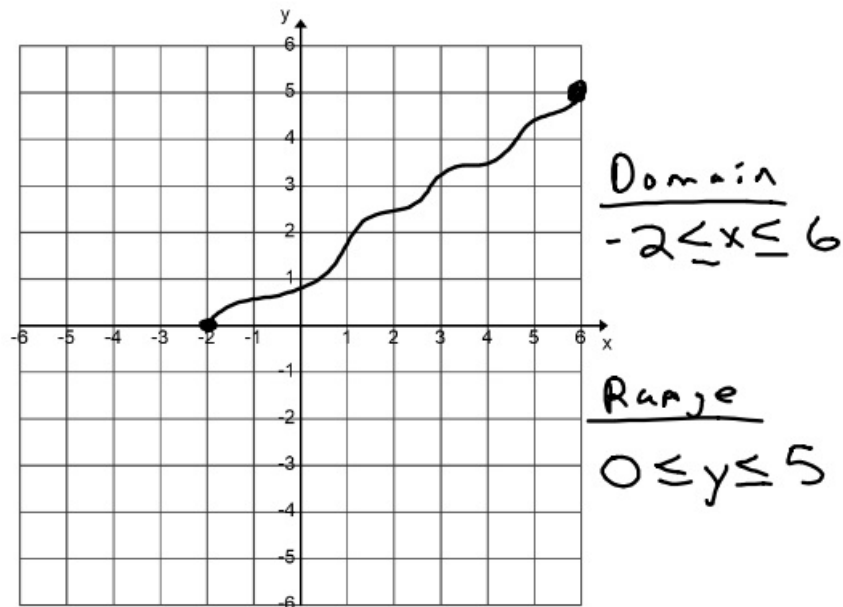
$$\frac{\text{Domain}}{-4 < x \leq 5}$$

$$\frac{\text{Range}}{2 < y \leq 4}$$



Domain  
 $-4 \leq x < 5$

Range  
 $-2 \leq y < 3$



$$f(x) = 3x + 1 \quad g(x) = 5x - 10$$

$$f(g(x))$$

$$f(5x - 10) = 3 \cdot (5x - 10) + 1$$

$$15x - 30 + 1$$

$$15x - 29$$

$$f(x) = 6x - 2$$

$$f(x^2 - 2x + 3) = 6 \cdot (x^2 - 2x + 3) - 2$$

$$6x^2 - 12x + 18 - 2$$

$$6x^2 - 12x + 16$$

$$f(x) = 10x + 1$$

$$f(2x - 5) = 10 \cdot (2x - 5) + 1$$

$$20x - 50 + 1$$

$$20x - 49$$

$$f(x) = 3x + 7 \quad g(x) = 2x - 10$$

$$g(\boxed{f(x)})$$

↓

$$g(3x+7) = 2 \cdot \boxed{(3x+7)} - 10$$
$$6x + 14 - 10$$
$$6x + 4$$

$$f(x) = 2x + 4$$

$$f(f(\boxed{f(x)})) =$$

↓

$$f(\boxed{f(2x+4)}) = 2 \cdot \boxed{(2x+4)} + 4$$

↓

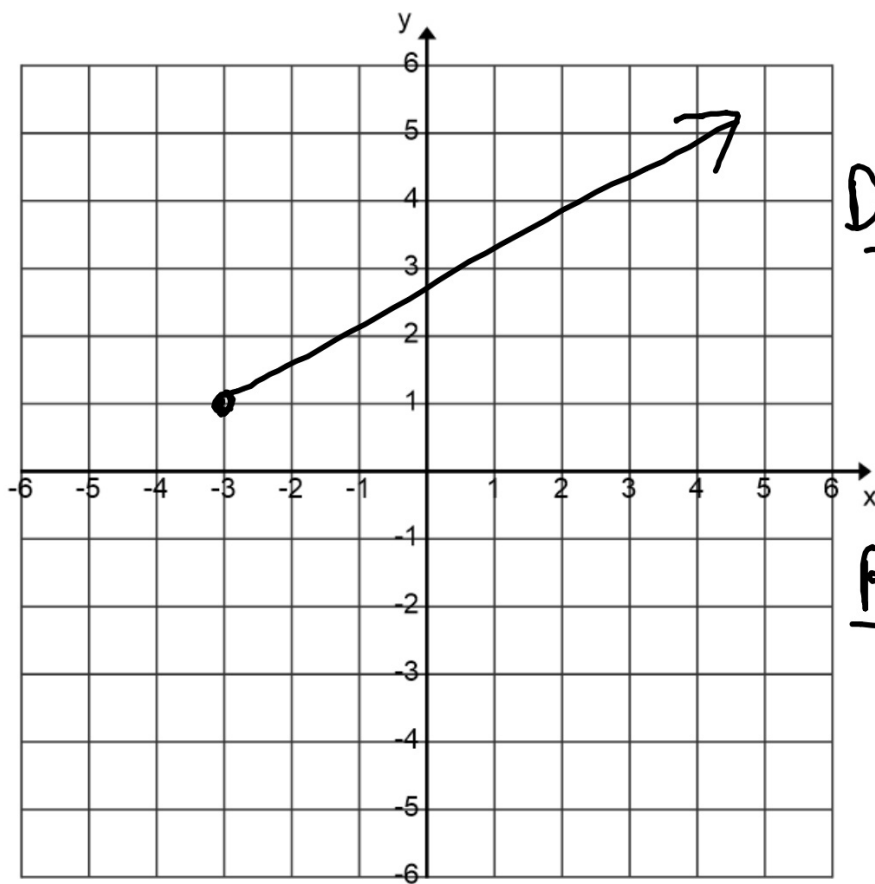
$$4x + 8 + 4$$

$$f(4x+12) \quad 4x+12$$

$$= 2 \cdot \boxed{(4x+12)} + 4$$

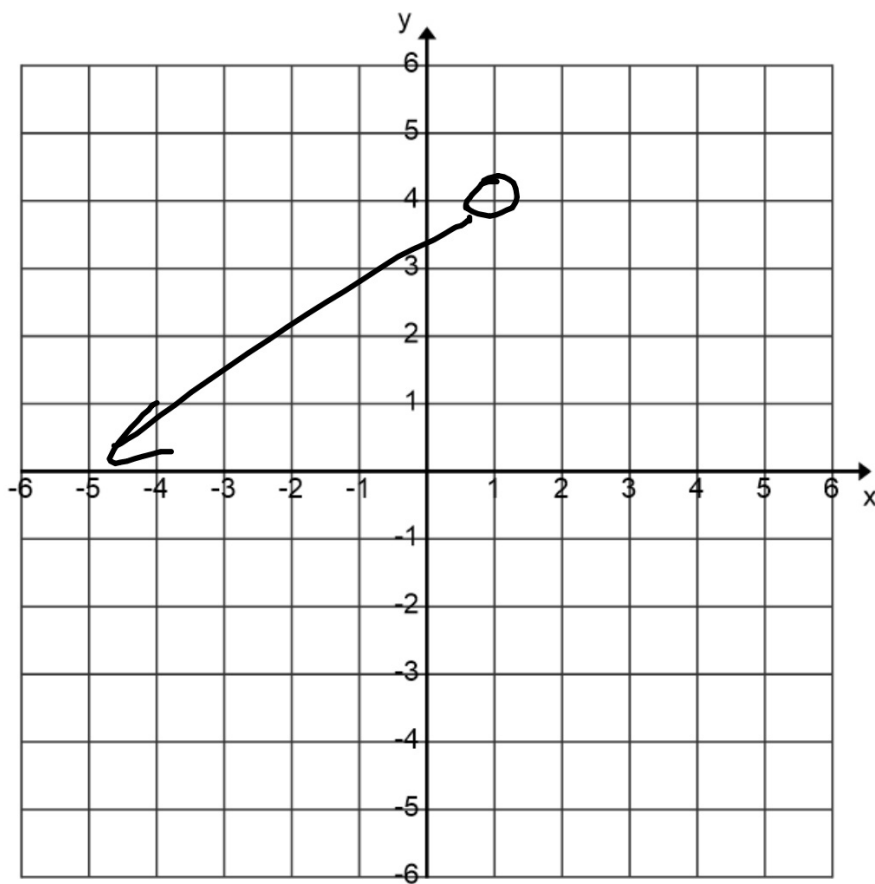
$$8x + 24 + 4$$

$$8x + 28$$



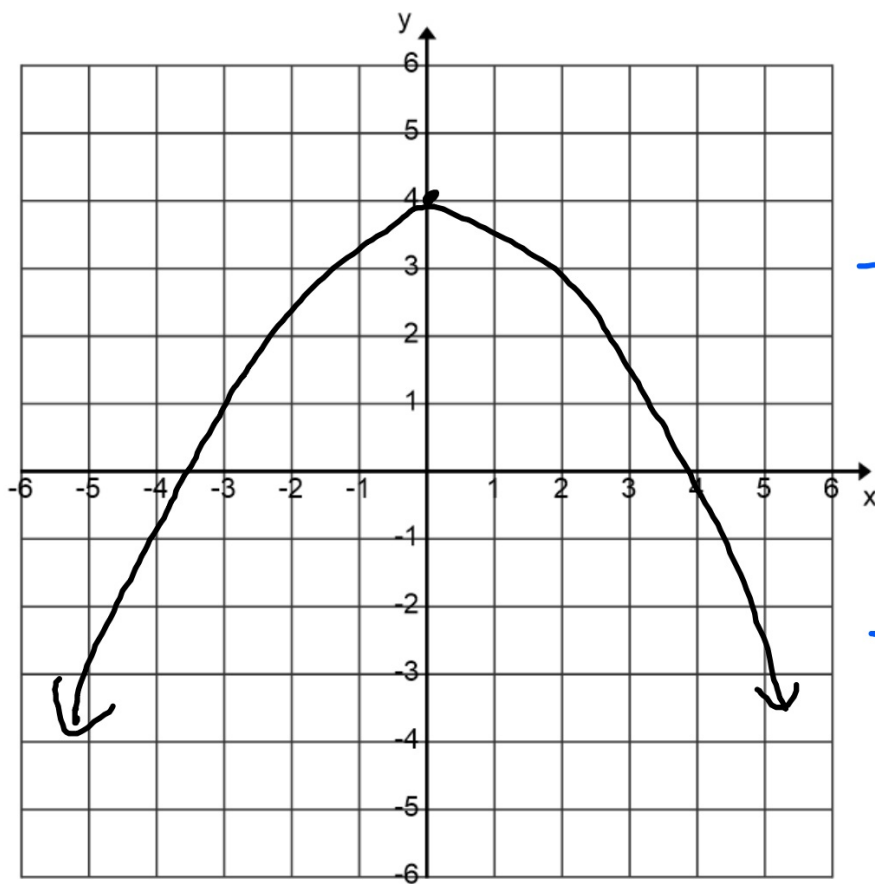
Domain:  
 $x \geq -3$

Range  
 $y \geq 1$



Domain  
 $x < 1$

Range  
 $y < 4$

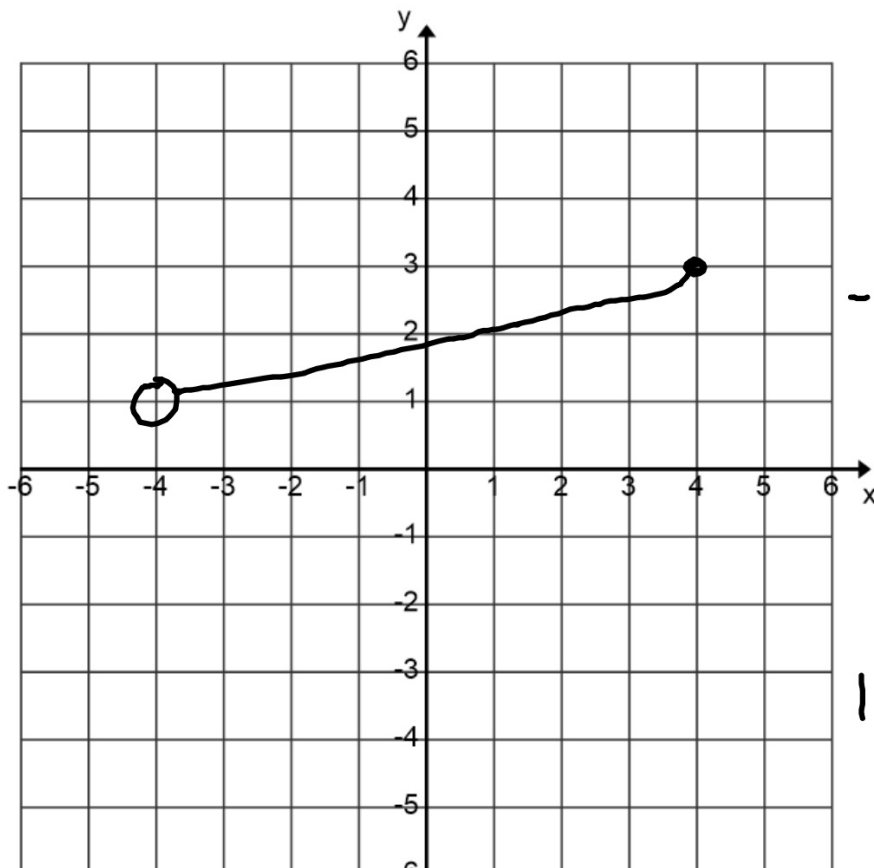


Domain  
 $\mathbb{R}$

Range  
 $y \leq 4$

10-8-19

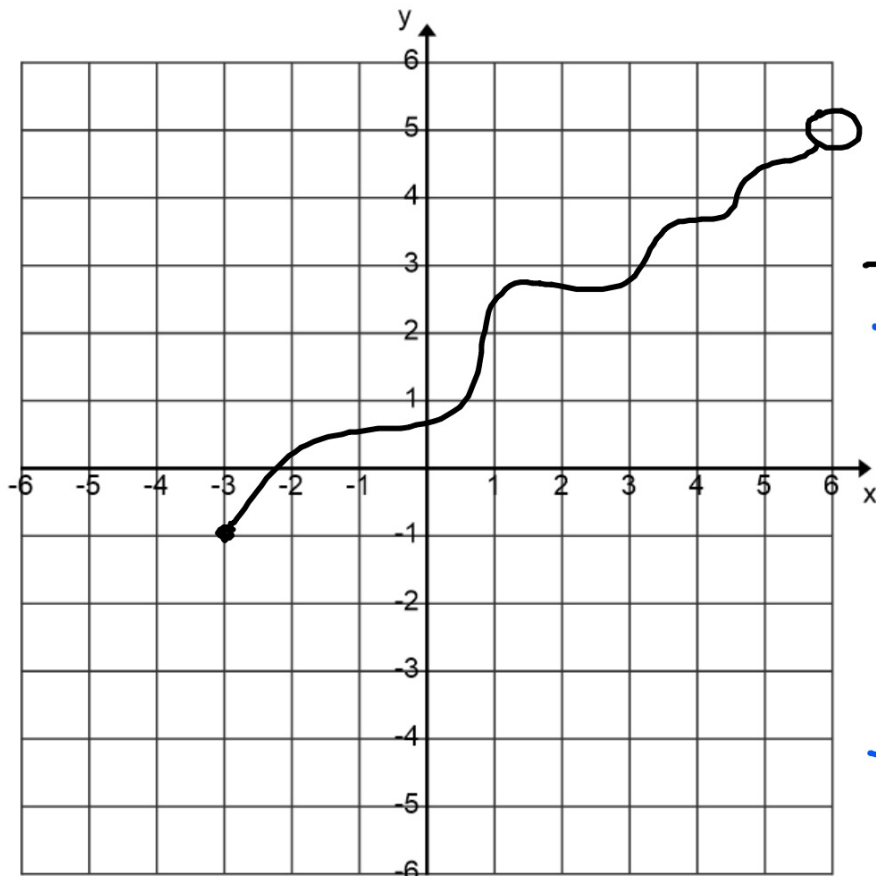
3<sup>rd</sup> Trig



Domain  
 $-4 < x \leq 4$

Range  
 $1 < y \leq 3$



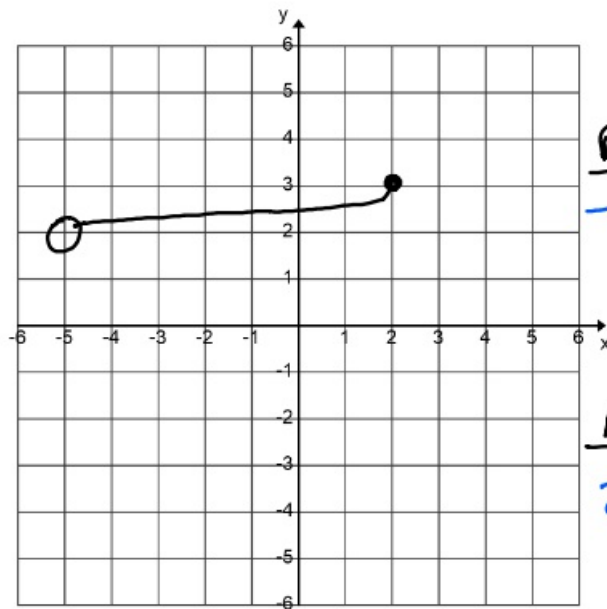


Domain  
 $-3 \leq x < 6$

Range  
 $-1 \leq y < 5$

1

, ,



Domain

$$-5 < x \leq 2$$

Range

$$2 < y \leq 3$$

$$f(x) = 3x + 10$$

$$f(2x+1) = 3 \cdot (2x+1) + 10$$

$$6x + 3 + 10$$

$$6x + 13$$

$$f(x) = 6x - 4$$

$$f(x^2 - 3x + 2) = 6 \cdot (x^2 - 3x + 2) - 4$$

$$6x^2 - 18x + 12 - 4$$

$$6x^2 - 18x + 8$$

$$f(x) = x^2$$

$$f(x-2) = (x-2)^2$$

$$= (x-2)(x-2)$$

$$= x^2 - 2x - 2x + 4$$

$$= x^2 - 4x + 4$$

$$f(x) = 3x + 1 \quad g(x) = 2x + 5$$

$$f(g(x))$$

$$f(2x + 5) = 3 \cdot (2x + 5) + 1$$

$$6x + 15 + 1$$

$$6x + 16$$

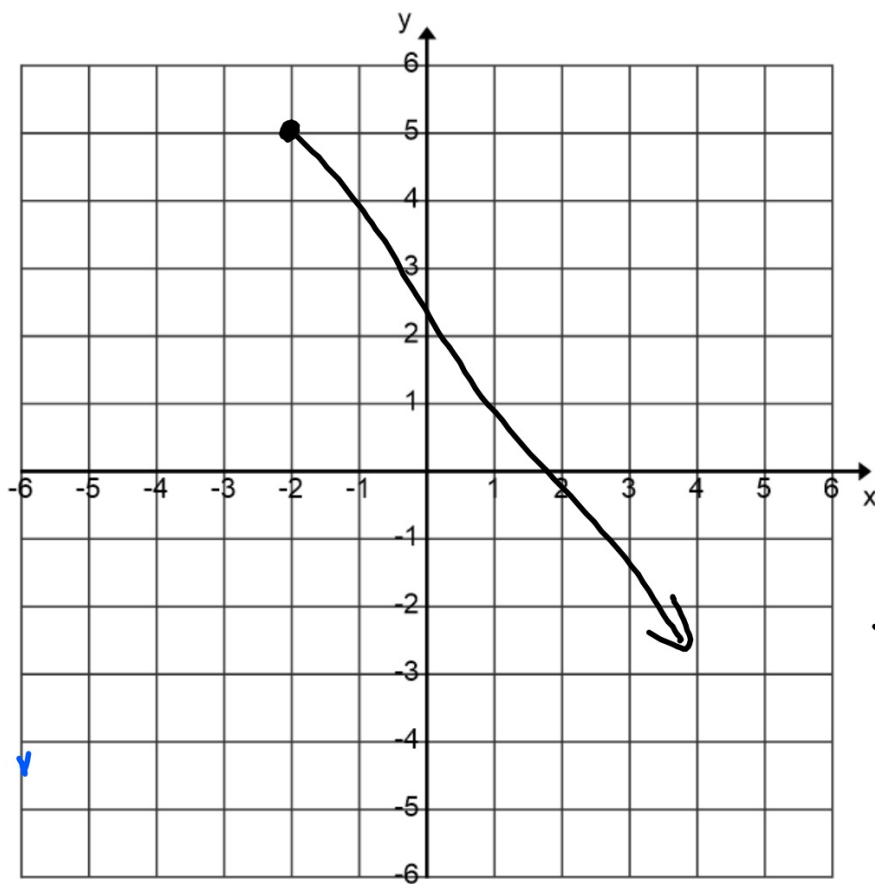
$$f(x) = 5x - 2 \quad g(x) = 10x + 3$$

$$g(f(x)) =$$

$$g(5x - 2) = 10 \cdot (5x - 2) + 3$$

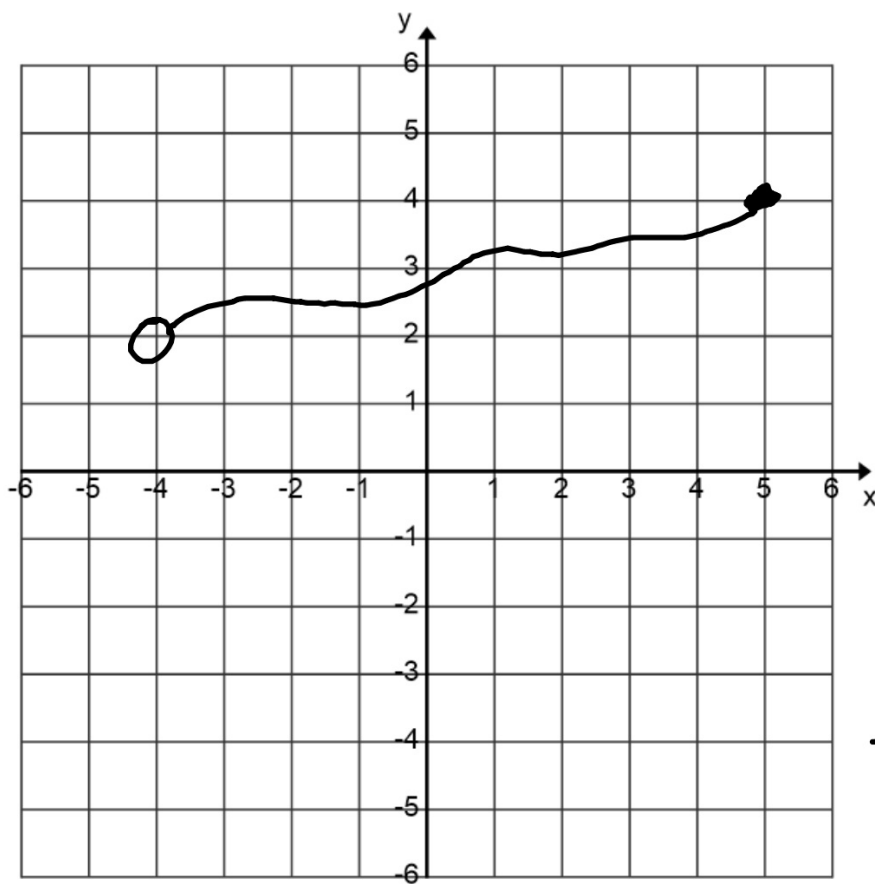
$$50x - 20 + 3$$

$$50x - 17$$



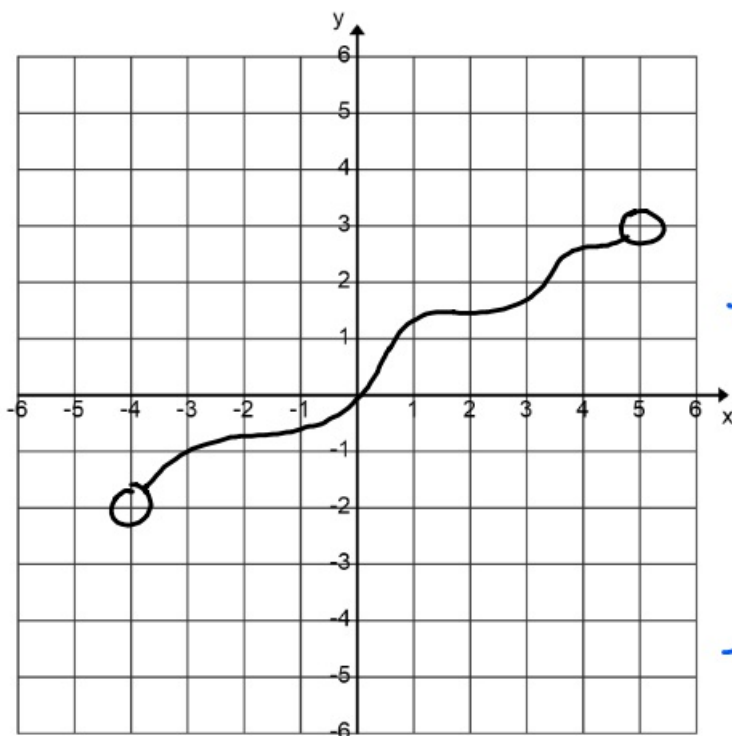
Domain  
 $x \geq -2$

Range  
 $y \leq 5$



Domain  
 $-4 < x \leq 5$

Range  
 $2 < y \leq 4$



Domain

$$-4 < x < 5$$

Range

$$-2 < y < 3$$

$$f(x) = 3x + 7$$

$$f(2x+3) = 3 \cdot (2x+3) + 7$$

$$6x + 9 + 7$$

$$6x + 16$$

$$f(x) = 4x - 2$$

$$f(x^2+2x-5) = 4 \cdot (x^2+2x-5) - 2$$

$$4x^2 + 8x - 20 - 2$$

$$4x^2 + 8x - 22$$

$$f(x) = 3x + 5$$

$$g(x) = 2x - 3$$

$$f(g(x))$$

$$f(2x-3) = 3 \cdot (2x-3) + 5$$

$$6x - 9 + 5$$

$$6x - 4$$

$$f(x) = 10x - 2$$

$$g(x) = 2x - 1$$

$$g(f(x))$$

$$g(10x-2) = 2 \cdot (10x-2) - 1$$

$$20x - 4 - 1$$

$$20x - 5$$