

10-10-19 4th Trig

$$\textcircled{18} (2a^{-3})^{-2}$$

$$\left(\frac{2}{a^3}\right)^{-1} \cdot 2$$

$$\left(\frac{a^3}{2}\right)^2 = \frac{a^3}{2} \cdot \frac{a^3}{2} = \frac{a^6}{4}$$

$$\textcircled{44} (3n^2y^4)^2 + n(n^4)y^3y^5$$

$$3n^2y^4 \cdot 3n^2y^4 + n \text{ n n n n } y y y y y y y y$$

$$3 \text{ n n } y y y y \quad 3 \text{ n n } y y y y + \quad \uparrow$$

$$9n^4y^8 + n^5y^8$$

$$\textcircled{1} 4(2n-1) - (5n-1) = 13$$

$$8n - 4 - 5n + 1 = 13$$

$$\frac{3n - 3 = 13}{+3 \quad +3}$$

$$\frac{3n}{3} = \frac{16}{3}$$

$$n = 5\frac{1}{3}$$

$$\textcircled{50} \quad f(x) = -3x^2$$

$$f(-2) = -3 \cdot (-2)^2$$

$$= -3 \cdot 4$$

$$= -12$$

$$f(x) = \underline{\hspace{2cm}} \neq 0$$

$$f(x) = \sqrt{\underline{\hspace{2cm}}} \geq 0$$

$$f(x) = \dots \mathbb{R}$$

$$\text{Ex 1: } f(x) = \sqrt{-2x+4} \geq 0$$

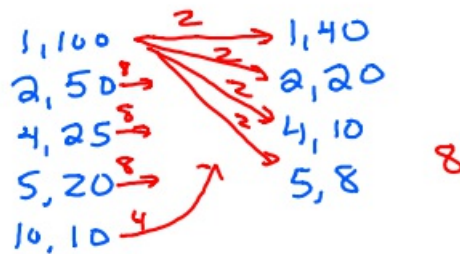
$$\begin{array}{r} -2x+4 \geq 0 \\ -4 \quad -4 \\ \hline -2x \geq -4 \\ \frac{-2x}{-2} \geq \frac{-4}{-2} \\ \mathbb{R}: x \leq 2 \end{array}$$

$$\text{Ex 2: } f(x) = x-5 \mathbb{R}$$

$$\text{Ex 3: } f(x) = \frac{3x^2}{2x+1} \neq 0$$

$$\begin{array}{r} 2x+1 \neq 0 \\ -1 \quad -1 \\ \hline 2x \neq -1 \\ \frac{2x}{2} \neq \frac{-1}{2} \\ x \neq -\frac{1}{2} \end{array}$$

$$\textcircled{67} \quad 100x^2 + \square x + 40$$



$\textcircled{36}$

68) $20x^2 + \square x + 20$

- 6) 1, 20
- 6) 2, 10
- 6) 4, 5

18) $(4x + 4)(5x + 5)$
 $(4x + 5)(5x + 4)$

29) $\sqrt[3]{16x^4 y^8}$

$$\begin{array}{c} 16 \\ \wedge \\ 4 \quad 4 \\ \wedge \quad \wedge \\ 2 \quad 2 \quad 2 \quad 2 \end{array} \quad 2xy \sqrt[3]{2 \cdot 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y \cdot y \cdot y \cdot y}$$

$$2xy^2 \sqrt[3]{2xy^2}$$

35) $\frac{3 \pm \sqrt{27}}{3} = \frac{3 \pm 3\sqrt{3}}{3}$
 $\sqrt{27} = 3\sqrt{3 \cdot 3 \cdot 3}$
 $1 \pm \sqrt{3}$

10) $4ny^2 - 8ny^3$
 $4ny^2(1 - 2y)$

42) $(2n^3y^4)^2 + n(n^5)y^8$
 $2n^3y^4 \cdot 2n^3y^4 + n(n^5)y^8$
 $2n \cdot n \cdot n \cdot y \cdot y \cdot y \cdot y \cdot 2n \cdot n \cdot n \cdot y \cdot y \cdot y \cdot y + n \cdot n \cdot n \cdot n \cdot n \cdot y^8$
 $4n^6y^8 + n^6y^8$
 $5n^6y^8$

14) $n-2 \sqrt{n^2 + 3n - 1}$

$$\begin{array}{r} n + 5 + \frac{9}{n-2} \\ \hline n^2 + 3n - 1 \\ - (n^2 - 2n) \\ \hline 5n - 1 \\ - (5n - 10) \\ \hline 9 \end{array}$$

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

$$f(x^2 + 2x + 1) = 3 \cdot (x^2 + 2x + 1) + 5$$
$$3x^2 + 6x + 3 + 5$$
$$3x^2 + 6x + 8$$

$$f(x) = 3x - 1$$

$$g(x) = 5x + 2$$

$$f(g(x))$$

$$f(5x + 2) = 3 \cdot (5x + 2) - 1$$
$$15x + 6 - 1$$
$$15x + 5$$

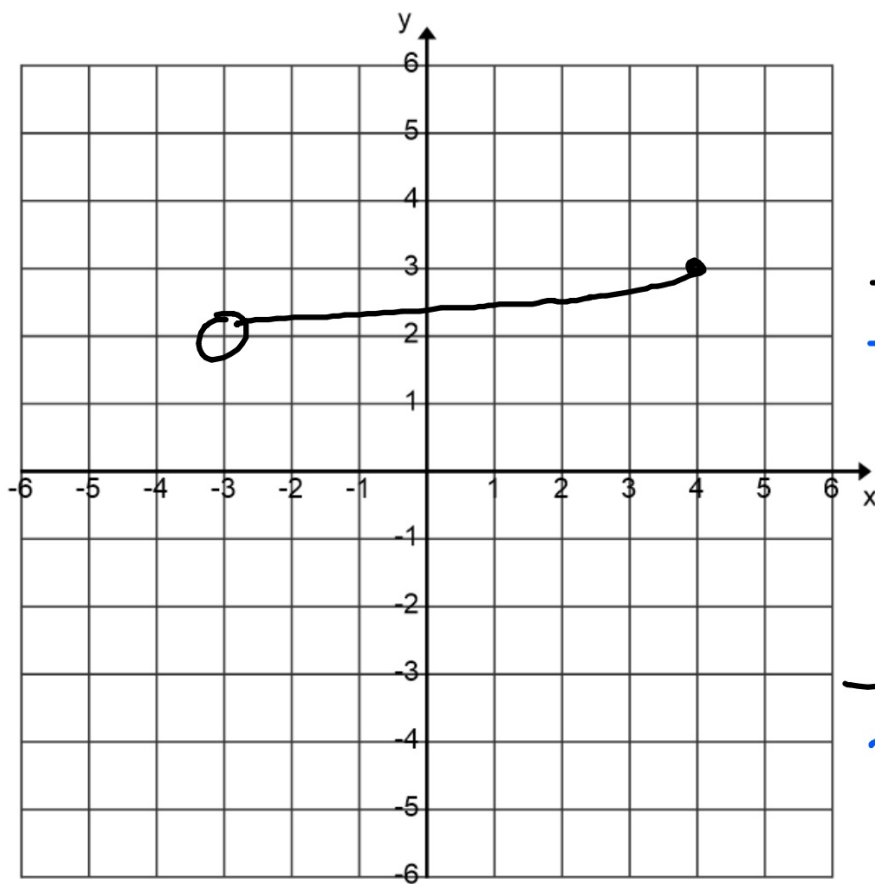
$$g(f(x))$$

$$g(3x - 1) = 5 \cdot (3x - 1) + 2$$
$$15x - 5 + 2$$
$$15x - 3$$

$$f(x) = 6x + 7$$

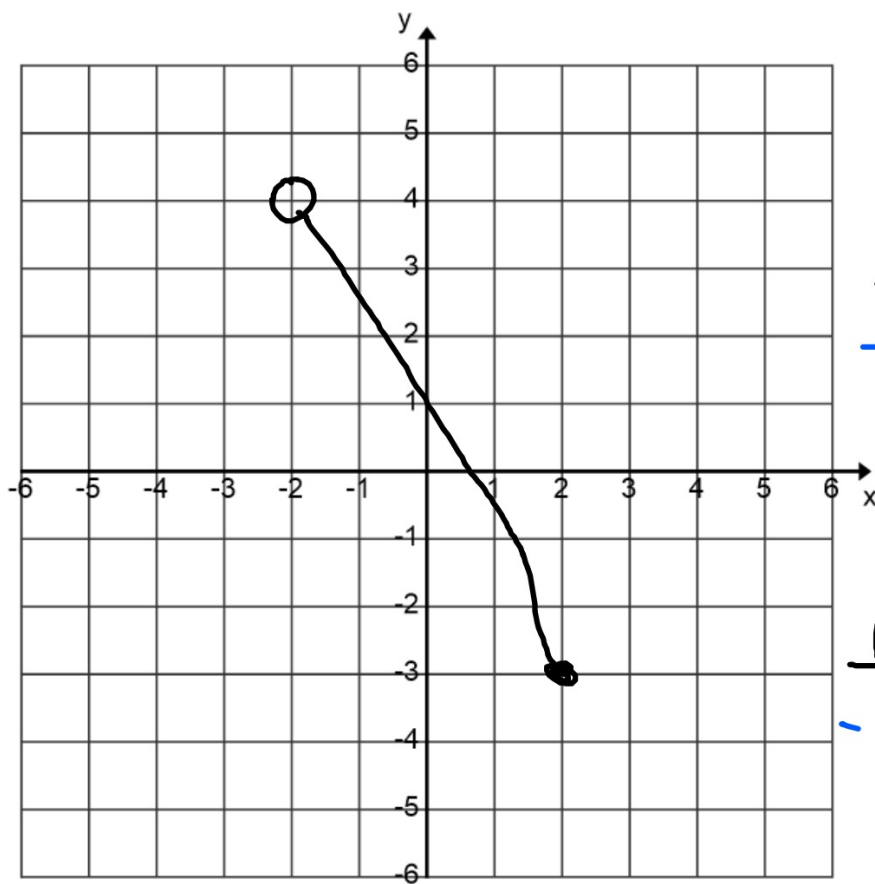
$$f(f(x)) =$$

$$f(6x + 7) = 6 \cdot (6x + 7) + 7$$
$$36x + 42 + 7$$
$$36x + 49$$



Domain
 $-3 < x \leq 4$

Range
 $2 < y \leq 3$

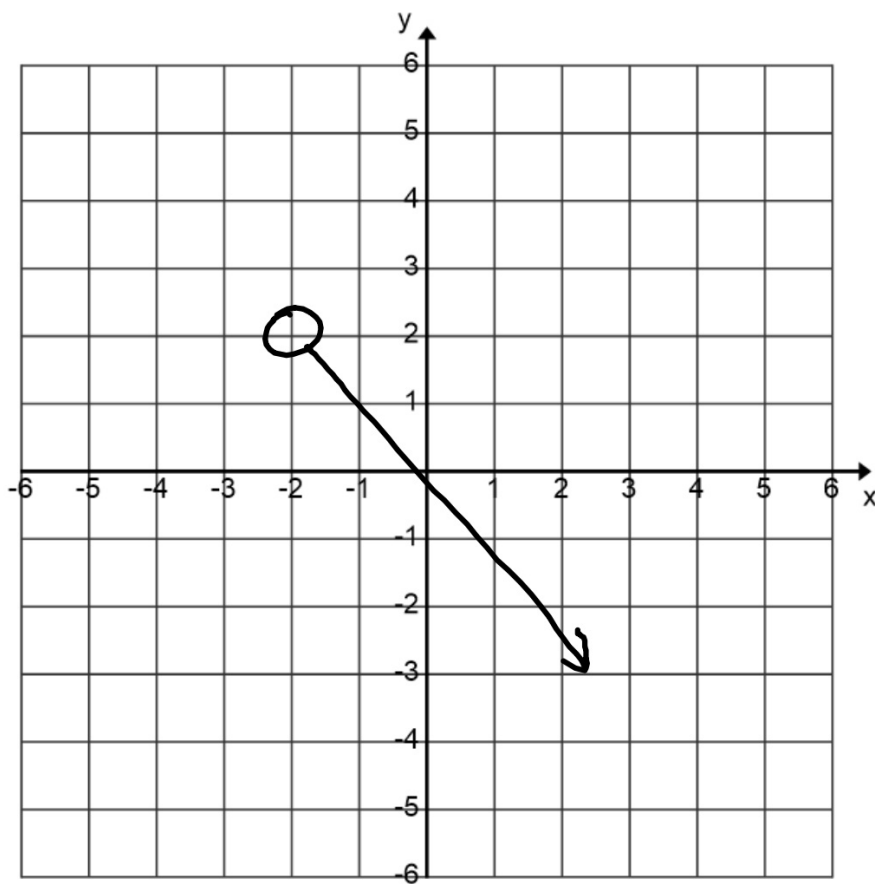


Domain

$$-2 < x \leq 2$$

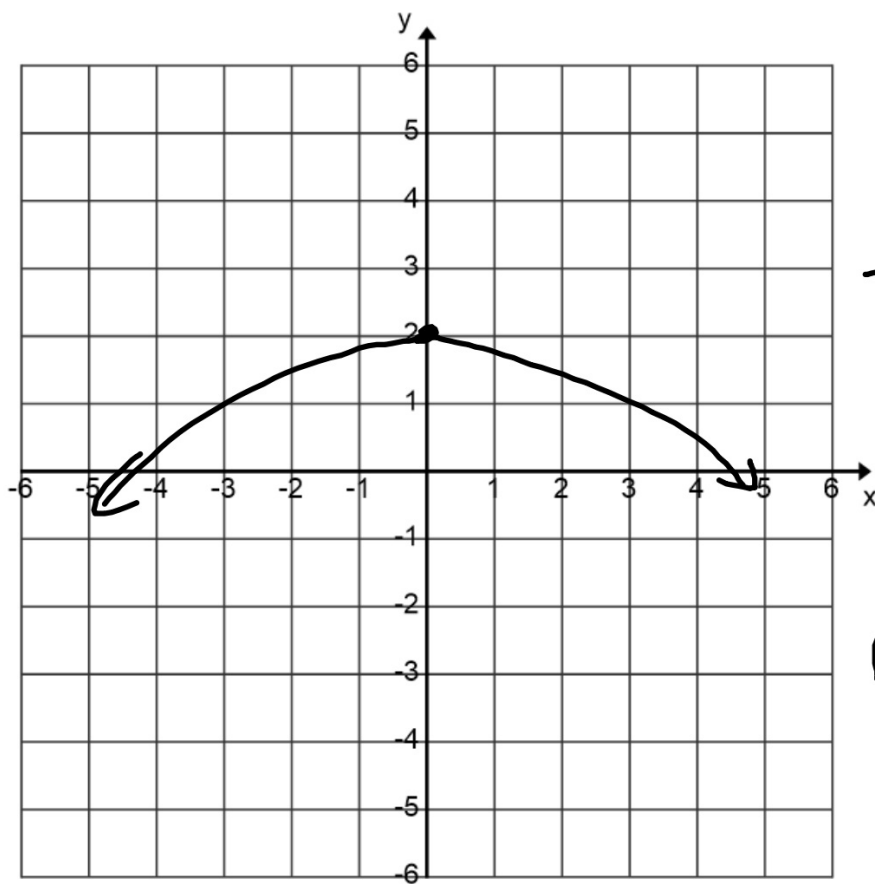
Range

$$-3 \leq y < 4$$



Domain
 $x > -2$

Range
 $y < 2$



Domain

$$\mathbb{R}$$

Range

$$y \leq 2$$