

A

$$y = \sqrt[3]{x-4}$$

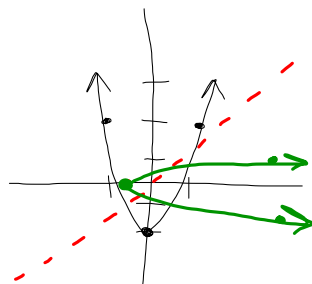
$$y = 4x^2 - 2$$

$$x = 4y^2 - 2$$

$$x + 2 = 4y^2$$

$$\sqrt{\frac{x}{4} + \frac{2}{4}} = \sqrt{y^2}$$

$$\pm \sqrt{\frac{1}{4}x + \frac{1}{2}} = y$$



$$\begin{aligned} \textcircled{31} \quad f^{-1}(f(10)) &= (f^{-1} \circ f)(10) \\ &= 10 \quad (f \circ f^{-1})(10) \end{aligned}$$

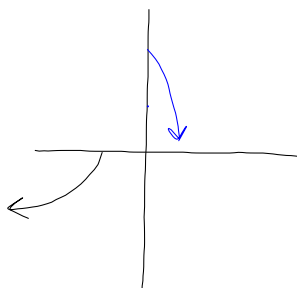
$$\textcircled{26} \quad y = \sqrt{-2x+3}$$

$$x = \sqrt{-2y+3}$$

$$x^2 = -2y+3$$

$$\frac{x^2-3}{-2} = \frac{-2y}{-2}$$

$$-\frac{1}{2}x^2 + \frac{3}{2} = y$$



7.6-7.8 Review with Domain and Range

Grade: 10th, 11th
Subject: Algebra II
Date: Second Semester

1 Answer the following question

Let $f(x) = -4x + 3$ and $g(x) = 3x^2 - 5$

Find $(f \circ g)(2)$

$$f(g(2)) = f(7) = -4(7) + 3$$

$$g(2) = 3(2)^2 - 5 = -28 + 3$$
$$= 12 - 5 = 7 \quad \boxed{= -25}$$

2 Let $f(x) = -4x + 3$ and $g(x) = 3x^2 - 5$

Find $(g-f)(x)$

$$3x^2 - 5 - (-4x + 3) \quad \text{A} \quad 3x^2 - 4x - 2$$

$$3x^2 - 5 + 4x - 3 \quad \text{B} \quad 3x^2 - 4x - 8$$

$$3x^2 + 4x - 8 \quad \text{C} \quad 3x^2 + 4x - 2$$

$$\text{D} \quad 3x^2 + 4x - 8$$

3 The domain of:

$$f(x) = \sqrt{2x + 12}$$

$2x + 12 \geq 0$ is $[-6, \infty)$

$$\frac{2x}{2} \geq \frac{-12}{2}$$

$$x \geq -6$$

True

False

4 For the function $f(x) = x + 10$, find $(f \circ f^{-1})(7)$

A 17

B -7

C 49

D 7

E none of the above

$$(f \circ f^{-1})(304)$$

$$(f^{-1} \circ f)(30)$$

5 Find the domain, using interval notation.

$$g(x) = \frac{x+3}{x^2 - 2x - 48} = 0$$

$$(x-8)(x+6) = 0$$

$$x \neq 8 \quad x \neq -6$$

$$(-\infty, -6) \cup (-6, 8) \cup (8, \infty)$$

1

$$\begin{array}{r} -48 \\ -8 \quad 6 \\ \hline -2 \end{array}$$

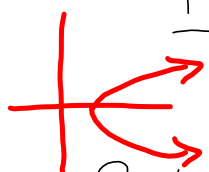
6 Find $f^{-1}(x)$. Then state if the inverse is a function.

$$f(x) = (x - 3)^2 + 1$$

$$x = (y - 3)^2 + 1$$

$$\sqrt{x - 1} = \sqrt{(y - 3)^2}$$

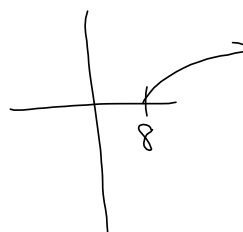
$$\pm \sqrt{x - 1} = y - 3$$



$$3 \pm \sqrt{x - 1} = y$$

$$\pm \sqrt{x - 1} + 3 = y$$

- 7 Find $f^{-1}(x)$. Then state the domain and range of the original function and the inverse function.



$$f(x) = \sqrt{x-8} \geq 0$$

$$D: [8, \infty) \quad x \geq 8$$

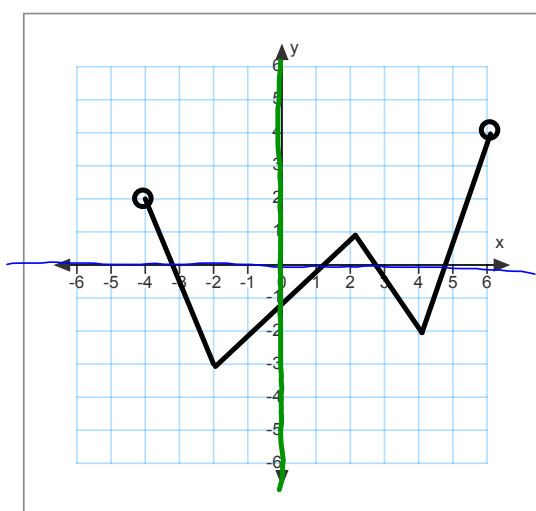
$$R: [0, \infty)$$

$$x = \sqrt{y-8}$$

$$x^2 = y-8 \quad D: [0, \infty)$$

$$x^2 + 8 = y \quad R: [8, \infty)$$

8 State the domain and range using interval notation.

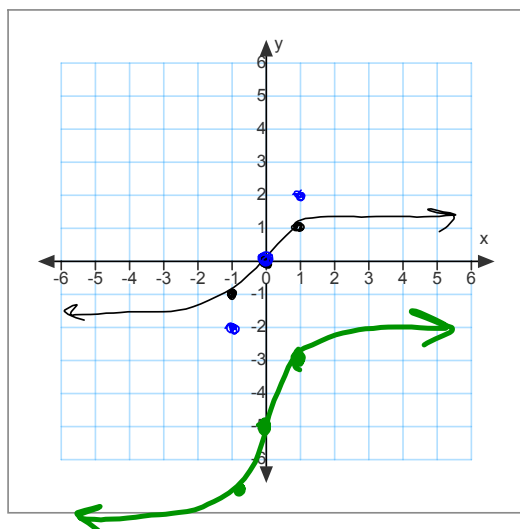


$$D: (-4, 6)$$

$$R: [-3, 4)$$

9 Graph the following using 3 reference points.

$$h(x) = 2\sqrt[3]{x} - 5$$



10 Graph the following using 3 reference points.

$$f(x) = -\sqrt{x+3} + 4$$

