

Students will review Algebra skills while learning how the structure of a PreCalculus works. Show work.

1. Solve for x.

$$3x^2 + 13x + 12 = 0$$

~~$$\begin{array}{r} 36x^2 \\ 9x \quad 4x \\ 13x \end{array}$$~~

4	4x	12
3x	3x ²	9x
	x	3

$$(3x+4)(x+3) = 0$$

$$x = \frac{-4}{3}$$

$$x = -3$$

2. Find the mistake and correct it.

Suppose $g(x) = 3x^2 - 5x + 12$

Evaluate $g(4)$

$$g(4) = 3(4)^2 - 5(4) + 12$$

$$g(4) = 40$$

3. Solve for x.

$$3x^2 + 27x = 0$$

$$3x(x+9) = 0$$

$$\frac{3x}{3} = \frac{0}{3}$$

$$x = 0$$

$$x+9 = 0$$

$$x = -9$$

4. Find the domain of the function algebraically.

$$f(x) = \sqrt{x+9}$$

$$x+9 \geq 0$$

$$x \geq -9$$

$$D: \{x \mid x \geq -9\}$$

5. Find the domain of the function algebraically.

$$g(x) = \frac{5}{x-5}$$

$$x-5 = 0$$

$$x = 5$$

$$D: \{x \mid x \neq 5\}$$

6. Algebraically find the domain.

$$h(x) = \frac{3x}{x^2 - 25}$$

$$x^2 - 25 = 0$$

$$x^2 = 25$$

$$x = 5 \quad x = -5$$

$$D: \{x \mid x \neq 5, x \neq -5\}$$

7. Find the domain of the function algebraically.

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

$$x-4 > 0$$

$$x > 4$$

$$D: \{x \mid x > 4\}$$

8. Find the domain of the function algebraically.

$$q(x) = \sqrt{-x-2}$$

$$-x-2 \geq 0$$

$$-2 \geq x$$

$$D: \{x \mid x \leq -2\}$$

9. Find the domain of the function algebraically.

$$f(x) = \frac{x}{x^2 + 1}$$

All Real #'s

10. Given $f(x) = -2x^2 + x - 1$, find $f(x+1)$

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

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

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

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

11. The graph of $g(x)$ appears to the right. Use the graph to answer the questions.

a) Find $g(2) = 1$

b) Find the domain of $g(x)$

All Real #'s

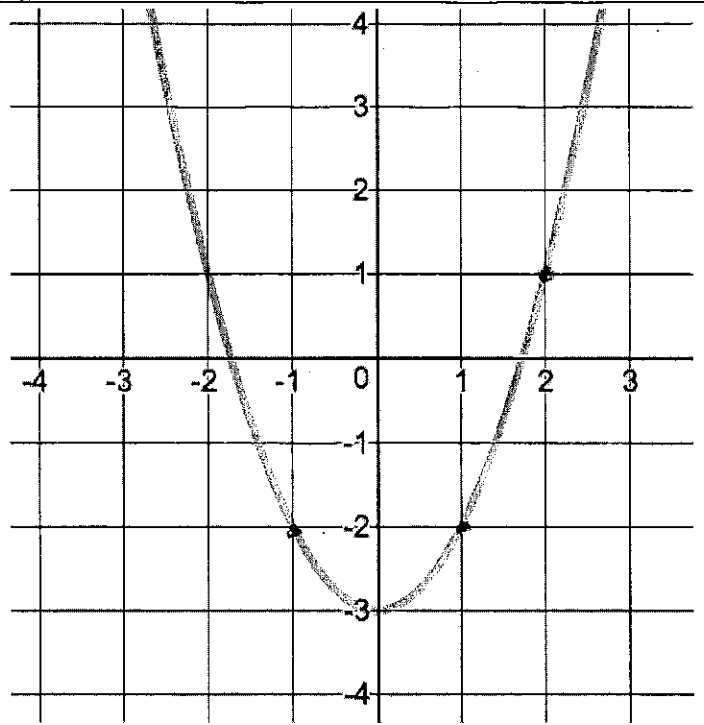
c) Find the range of $g(x)$

$R: \{y \mid y \geq -3\}$

d) Solve $g(x) = -2$

$x = \{-1, 1\}$

e) Find $g(-1) = -2$



12. The graph of $f(x)$ appears to the right. Use the graph to answer the questions.

a) Find the domain of f . $D: \{x \mid -5 \leq x < 4\}$

b) Find the range of f .

$R: \{y \mid y = -2, 0.2 < y < 4, 4 < y \leq 8\}$

c) Find $f(2) = 1$

d) Find $f(1) = 2$

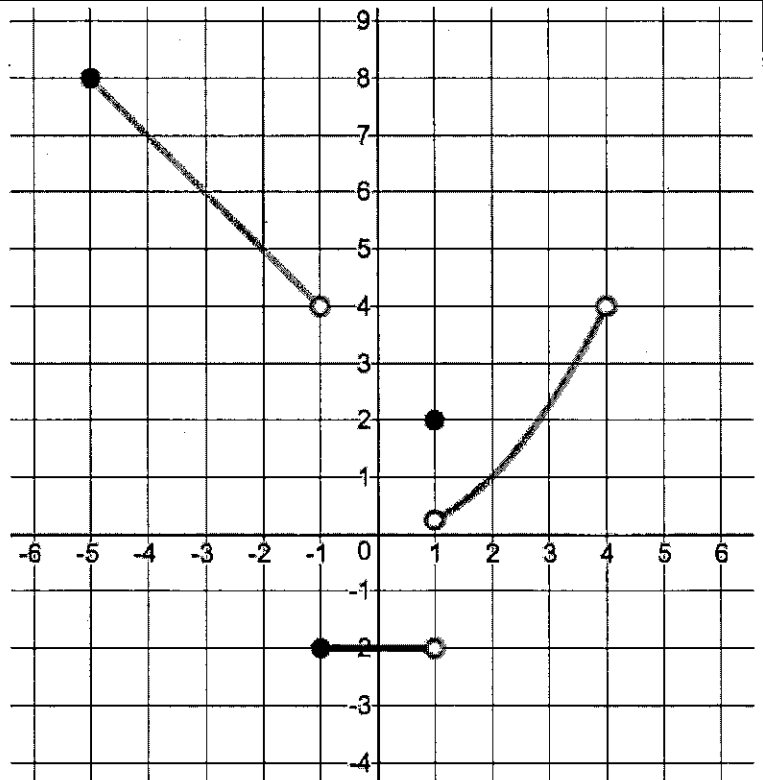
e) Solve $f(x) = 5$

$x = -2$

f) Find $f(-3) = 6$

g) Solve $f(x) = 2$

$x = \{1, 2.8\}$



13. Write the equation of the piecewise function in problem 12.

$$f(x) = \begin{cases} -x + 3, & -5 \leq x < -1 \\ -2, & -1 \leq x < 1 \\ 2, & x = 1 \\ \frac{1}{4}x^2, & 1 < x < 4 \end{cases}$$