

6. Given the function $g(x) = \sqrt{x+4}$, which of the following values of x cannot be in the domain of g ?

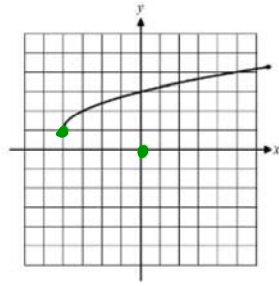
- (1) $x=1$
- (2) $x=-2$
- (3) $x=-5$
- (4) $x=12$



→ X VALUES

7. The function $f(x) = \sqrt{x+a} + b$ is graphed on the grid below. Which of the following is the sum of a and b ?
HINT: Where did the function SHIFT?

- (1) 7
- (2) 2
- (3) -1
- (4) 5



LEFT 4
UP 1

$y = \sqrt{x+4} + 1$

8. Which of the following is the solution set to the equation $(x+2)^2 = 25$?

- (1) $\{-2, 5\}$
- (2) $\{-7, 3\}$
- (3) $\{-3, 3\}$
- (4) $\{-5, 5\}$

$4+1=5$

9. The solution set to $(x-4)^2 = 20$ is

- (1) $x = 4 \pm 2\sqrt{5}$
- (2) $x = \pm 6\sqrt{5}$
- (3) $x = -4 \pm 4\sqrt{5}$
- (4) $x = \pm 2\sqrt{5}$

$y = (x-4)^2 - 20$

$\sqrt{(x-4)^2} = \sqrt{20}$

$x-4 = \sqrt{4}\sqrt{5}$

$x-4 = \pm 2\sqrt{5}$

$x = 4 \pm 2\sqrt{5}$

10. Which of the following equations has the same solutions as $x^2 - 10x + 3 = 0$? Complete the square!

- (1) $(x-5)^2 + 3 = 0$
- (2) $(x-10)^2 - 3 = 0$
- (3) $(x-5)^2 - 22 = 0$
- (4) $(x-10)^2 + 3 = 0$

11. When solving the equation $x^2 - 20x + 11 = 0$ using the method of completing the square, which of the following quantities must be added to form a perfect square trinomial?

- (1) 40
- (2) 100
- (3) -80
- (4) 400

$$x^2 - 20x + 100 - 100 + 11 = 0$$

$$\frac{-20}{2} = (-10)^2 \quad (x-10)^2 - 89 = 0$$

half →

12. Which of the following represents the solutions to the equation $x^2 + 6x + 4 = 0$?

- (1) $x = -4$ and 6
- (2) $x = -3 \pm \sqrt{10}$
- (3) $x = -3 \pm \sqrt{5}$
- (4) $x = -3 \pm 2\sqrt{5}$

13. The positive solution to the quadratic equation after using the quadratic formula $10x^2 + 11x - 6 = 0$ is

- (1) $x = 11 \pm \sqrt{6}$
- (2) $x = 6 + \sqrt{11}$
- (3) $x = \frac{3}{2}$
- (4) $x = \frac{2}{5}$

$a = 10$
 $b = 11$
 $c = -6$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{-11 \pm \sqrt{(11)^2 - 4(10)(-6)}}{20}$$

$$\frac{-11 \pm \sqrt{361}}{20}$$

$$\frac{-11 \pm 19}{20}$$

$$\frac{-11 + 19}{20} = \frac{8}{20}$$

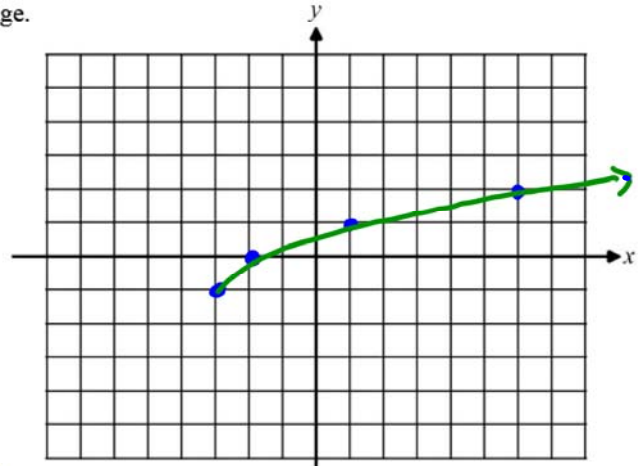
$$\frac{-11 - 19}{20} = \frac{-30}{20}$$

Free Response Questions:

14. Graph the function $f(x) = \sqrt{x+3} - 1$ on the grid below. Show the table that you created by hand or using your calculator. Then, state its domain and range.

Table:

x	y
-3	-1
-2	0
1	1
6	2



Domain:

$[-3, \infty)$

Range:

$[-1, \infty)$

15. Give an example of a non-integer rational number and an irrational number.

Non-integer Rational Example

$\frac{1}{2}$

Irrational Number

$\sqrt{10}$

If you added your two numbers, would the sum be rational or irrational?

irrational

16. Solve the following equation for all values of x.

$$2(x-5)^2 + 13 = 31$$

17. Solve the following equation for all values of x . Express your answers in simplest radical form.

$$\frac{(x+2)^2}{5} + 7 = 16$$

18. Solve the following quadratic equation for all values of x using the method of completing the square.

$$x^2 - 8x + 5 = 0$$

$$3x^2 + 10x - 5 = 0$$

19. Algebraically determine the solutions to the equation shown below. Round your answers to the nearest hundredth.

$$3x^2 + 10x - 5 = 0$$

$$\begin{aligned} a &= 3 \\ b &= 10 \\ c &= -5 \end{aligned}$$

$$\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$\frac{-5 \pm 2\sqrt{10}}{3}$$

$$\frac{-10 \pm \sqrt{(10)^2 - 4(3)(-5)}}{6}$$

$$\frac{-10 \pm \sqrt{160}}{6} = \begin{cases} \rightarrow .44 \\ \rightarrow -3.77 \end{cases}$$