

Sample Test 2

- Solve the equation $\sqrt{x+1} = x-1$. What describes your solution set best?
(a) One positive solution (b) One negative solution (c) No solution (d) Two solutions
- Solve the equation $\sqrt{3x+1} = 1 + \sqrt{x+4}$. What describes your solution set best?
(a) One positive solution (b) One negative solution (c) No solution (d) Two solutions
- Find the distance between $(7, -1)$ and $(3, -3)$.
(a) 12 (b) 2 (c) $2\sqrt{5}$ (d) $12\sqrt{3}$
- Find the midpoint of the line segment whose endpoints are $(7, 4)$ and $(1, 7)$.
(a) $(8, 11)$ (b) $6, -3$ (c) $(\frac{11}{2}, 4)$ (d) $(4, \frac{11}{2})$
- If $(-5, 9)$ is the endpoint of a line segment, and $(-3, 8)$ is its midpoint, find the other endpoint.
(a) $(-9, 11)$ (b) $(-7, 13)$ (c) $(-1, 10)$ (d) $(-1, 7)$
- Find the equation of the circle, centered at $(4, -6)$ and of radius 5.
(a) $(x-6)^2 + (y+4)^2 = 5$ (b) $(x-4)^2 + (y+6)^2 = 25$ (c) $(x-4)^2 + (y+6)^2 = 5$
(d) $(x-6)^2 + (y+4)^2 = 25$
- Find the center and radius of the circle given by $x^2 - 8x + y^2 - 4y = 61$.
(a) $(4, 2), r = 9$ (b) $(-4, -2), r = 81$ (c) $(4, 2), r = 81$ (d) $(-4, -2), r = 9$
- Which of the following lines passes through $(3, 2)$ and has slope $-\frac{3}{7}$?
(a) $7x + 3y = -23$ (b) $3x - 7y = 23$ (c) $3x + 7y = 23$ (d) $7x + 3y = 23$

9. Find the slope of the line passing through $(-8, -5)$ and $(1, 9)$.
(a) Undefined (b) 4 (c) $\frac{14}{5}$ (d) $\frac{14}{9}$
10. Write the equation $5x - 3y = 4$ in slope-intercept form.
(a) $y = \frac{5}{3}x - \frac{4}{3}$ (b) $y = \frac{3}{5}x + \frac{4}{5}$ (c) $y = \frac{5}{3}x + \frac{4}{3}$ (d) $y = 5x - 4$
11. Write the equation of the line passing through $(-7, -10)$, perpendicular to $-7x - 8y = 73$
(a) $-8x - 7y = 73$ (b) $-7x - 8y = -14$ (c) $-8x + 7y = -14$ (d) $-8x - 7y = -14$
12. Which of the following relations is *not* a function?
(a) $\{(1, 1), (2, 1), (3, 1)\}$ (b) $\{(1, 1), (2, 2), (3, 3)\}$ (c) $\{(1, 3), (1, 2), (3, 3)\}$
(d) $\{(1, 1), (2, 1), (3, 3)\}$
13. Find the domain of $f(x) = x^2 + \sqrt{x - 7}$
(a) $x < 7$ (b) $x > 7$ (c) $[7, \infty)$ (d) $[-7, \infty)$
14. Find the domain of $\frac{1}{(x - 2)\sqrt{x + 1}}$.
(a) All real numbers (b) empty (c) $x \neq 2$ and $x \geq -1$ (d) $x \neq 2$ and $x > -1$.
15. How do you obtain the graph of $f(x) = \sqrt{x - 1}$ from the graph of $g(x) = \sqrt{x}$?
(a) Shift one unit up. (b) Shift one unit down. (c) Shift one unit to the right. (d) Shift one unit to the left.
16. Compare the graph of $f(x) = -2x^2$ to the graph of $g(x) = x^2$. Does it open upward or downward, is it wider, or narrower than the graph of $g(x) = x^2$?
(a) Upward, wider (b) Upward, narrower (c) Downward, wider (d) Downward, narrower
17. Find the vertex of the parabola $y = (x + 5)^2 + 4$.
(a) $(-5, 4)$ (b) $(-4, 5)$ (c) $(4, -5)$ (d) $(4, -25)$

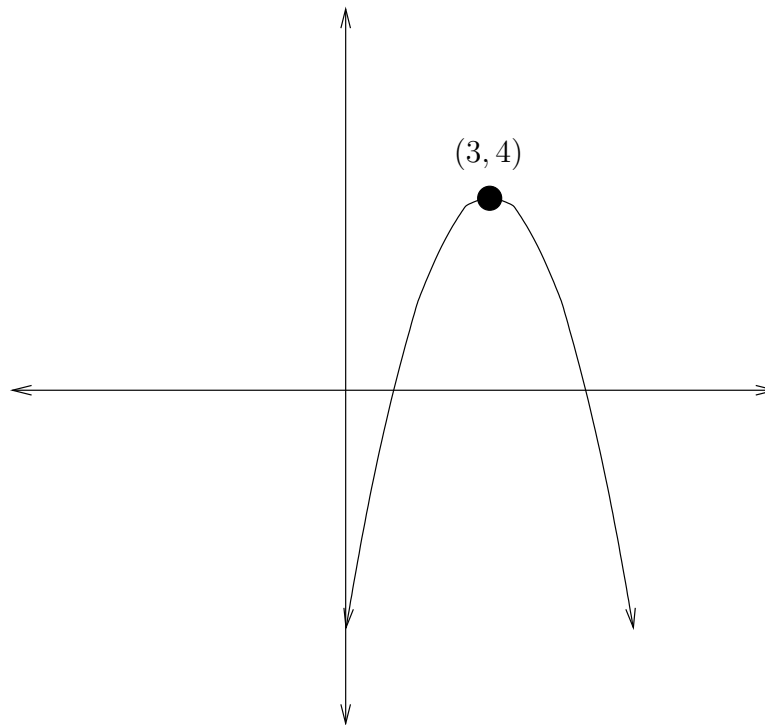
18. Find the axis of symmetry of the of the parabola $f(x) = x^2 + 4x + 11$.

- (a) $x = -4$ (b) $x = -2$ (c) $x = 2$ (d) $y = 4$

19. Find the x -intercepts of the parabola $f(x) = 2x^2 - 4x$.

- (a) $x = 0$ and $x = 4$ (b) $x = 2$ and $x = 4$ (c) $x = 0$ and $x = 2$ (d) $y = 0$

20. Find the equation of the function whose graph is shown below.



- (a) $f(x) = (x - 3)^2 + 4$ (b) $f(x) = (x - 3)^2 - 4$ (c) $f(x) = -(x - 3)^2 + 4$ (d)
 $f(x) = -(x - 3)^2 - 4$

21. A farmer has 1000 yards of fencing material. What is the largest rectangular area he can enclose. Express your answer in square yards.

- (a) 30,000 (b) 62,500 (c) 250,000 (d) 1,000,000

Solution key:

1. a ($x = 3$, the root $x = 0$ is extraneous)
2. a ($x = 5$, the root $x = 0$ is extraneous)
3. c
4. d
5. d
6. b
7. a
8. c
9. d
10. a
11. c
12. c
13. c
14. d
15. c
16. d
17. a
18. b
19. c
20. c
21. b