Algebra 2CP **Chapters 5 Fall Review Worksheet** **Name** _____ **Period** _____

Graphing Quadratic Functions

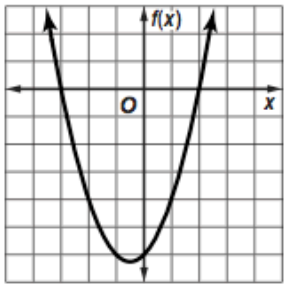
1. Find the y-intercept for $f(x) = -(x + 1)^2$.
   A. 1 **B.** -1 **C.** x **D.** 0

2. What is the equation of the axis of symmetry of $y = -3(x + 6)^2 + 12$?
   A. $x = 2$ **B.** $x = -6$ **C.** $x = 6$ **D.** $x = -18$

3. Find the minimum value of $f(x) = x^2 - 6x$.
   A. 3 **B.** -6 **C.** -9 **D.** 27

4. The graph of $f(x) = -2x^2 + x$ opens _____ and has a _____ value.
   A. down; maximum **B.** down; minimum
   C. up; maximum **D.** up; minimum

5. The related graph of a quadratic equation is shown at the right. Use the graph to determine the solutions of the equation.
   A. $-2, 3$ **B.** $-3, 2$
   C. $0, -6$ **D.** $0, 2$



6. The quadratic function $f(x) = x^2$ has _____.
   A. no zeros **B.** exactly one zero
   C. exactly two zeros **D.** more than two zeros

Solving Quadratics by Factoring

7. $x^2 - 3x - 10 = 0$
   A. $\{-5, 2\}$ **B.** $(-2, 5)$ **C.** $\{-2, 5\}$ **D.** $\{-10, 1\}$

8. $2x^2 - 6x = 0$
   A. $\{-3, 0\}$ **B.** $\{0, 3\}$ **C.** $\{0, 6\}$ **D.** $\{-3, 3\}$

9. $x^2 - 3x = 18$
   A. $\{6\}$ **B.** $\{-6, 3\}$ **C.** $\{-9, 2\}$ **D.** $\{-3, 6\}$

10. $3x^2 = 20 - 7x$
    A. $\{-10, 2\}$ **B.** $\left\{-5, \frac{4}{3}\right\}$ **C.** $\left\{-4, \frac{5}{3}\right\}$ **D.** $\left\{-20, \frac{1}{3}\right\}$

Completing the Square

11. To solve $x^2 + 8x + 16 = 25$ by using the Square Root Property, you would first rewrite the equation as _____.
    A. $(x + 4)^2 = 25$ **B.** $x^2 + 8x - 9 = 0$
    C. $(x + 4)^2 = 5$ **D.** $x^2 + 8x = 9$

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____

12. Find the value of c that makes $x^2 + 10x + c$ a perfect square. 12. _____

A. 100 **B.** 25 **C.** 10 **D.** 50

13. Find the value of c that makes $x^2 - 9x + c$ a perfect square. 13. _____

A. $\frac{81}{4}$ **B.** $\frac{9}{2}$ **C.** $-\frac{81}{4}$ **D.** 81

14. The quadratic equation $x^2 + 6x = 1$ is to be solved by completing the square. Which equation would be the first step in that solution? 14. _____

A. $x^2 + 6x - 1 = 0$ **B.** $x^2 + 6x + 36 = 1 + 36$

C. $x(x + 6) = 1$ **D.** $x^2 + 6x + 9 = 1 + 9$

15. The quadratic equation $x^2 - 8x = -20$ is to be solved by completing the square. Which equation would be a step in that solution? 15. _____

A. $(x - 4)^2 = 4$ **B.** $x - 4 = \pm 2i$

C. $x^2 - 8x + 20 = 0$ **D.** $x^2 - 8x + 16 = -20$

The Quadratic Formula and the Discriminant

16. Find the exact solutions to $x^2 - 3x + 1 = 0$ by using the Quadratic Formula. 16. _____

A. $\frac{-3 \pm \sqrt{5}}{2}$ **B.** $\frac{3 \pm \sqrt{13}}{2}$ **C.** $\frac{-3 \pm \sqrt{13}}{2}$ **D.** $\frac{3 \pm \sqrt{5}}{2}$

17. Find the exact solutions to $3x^2 = 5x - 1$ by using the Quadratic Formula. 17. _____

A. $\frac{-5 \pm \sqrt{13}}{6}$ **B.** $\frac{5 \pm \sqrt{13}}{3}$ **C.** $\frac{5 \pm \sqrt{37}}{6}$ **D.** $\frac{5 \pm \sqrt{13}}{6}$

18. $x^2 - 3x + 7 = 0$ 18. _____

A. 2 complex roots **B.** 2 real, irrational roots

C. 2 real, rational roots **D.** 1 real, rational root

19. $x^2 = 4x - 4$ 19. _____

A. 2 real, rational roots **B.** 2 real, irrational roots

C. 1 real, rational root **D.** no real roots

Analyzing Graphs of Quadratic Functions

20. What is the vertex of $y = 2(x - 3)^2 + 6$? 20. _____

A. $(-3, -6)$ **B.** $(3, -6)$ **C.** $(-3, 6)$ **D.** $(3, 6)$

21. What is the equation of the axis of symmetry of $y = -3(x + 6)^2 + 1$? 21. _____

A. $x = 2$ **B.** $x = -6$ **C.** $x = -3$ **D.** $x = 6$

22. Which quadratic function has its vertex at $(2, 3)$ and passes through $(1, 0)$? 22. _____

A. $y = 2(x - 2)^2 + 3$ **B.** $y = -3(x + 2)^2 + 3$

C. $y = -3(x - 2)^2 + 3$ **D.** $y = 2(x - 2)^2 - 3$