Name: _____

Worksheet: Solving Quadratics by Graphing & Factoring

1. What does "find the zeros of the function" mean?

2. When you are solving a quadratic equation by graphing, what do you look for on the graph of a function?

In problems 3 and 4, write the equation in standard form and then solve by graphing using a graphing calculator.

3. $x^2 - 12x = -35$

4. $\frac{1}{2}x^2 + 2x = 6$

In problems 5-7, find the zeros of the function. Solve by Graphing.

5. $f(x) = -x^2 + 4x + 12$

6. $f(x) = x^2 + x - 20$

7. $f(x) = x^2 + 3x - 10$

In problems 8 and 9, approximate the zeros of the function to the nearest tenth.

8. $f(x) = 5x^2 + 30x + 30$

9. $f(x) = -x^2 - 3x + 3$

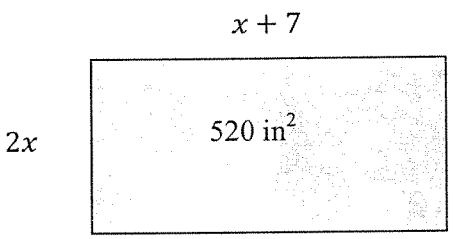
3. x=5,7 4. x=-6,2 5. x=-2,6 6. x=-5,4 7. x=-5,2 8. x=-4.7,-1.3 9. x=-3.8,0.8

II. Practice solving quadratics by factoring.

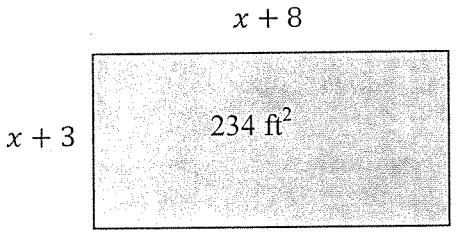
1. $x^2 + 5x + 6 = 0$
2. $x^2 - x - 12 = 0$
3. $a^2 - 9a + 18 = 0$
4. $t^2 + 2t - 19 = 5$
5. $x^2 + 15x + 30 = -6$
6. $d^2 + 10d = -16$
7. $2x^2 + 6x + 4 = 0$
8. $3a^2 - 12a = 15$
9. $c^2 - 6c + 9 = 0$
10. $5x^2 - 14x + 8 = 0$
11. $h^2 - 7 = 9$
12. $7t^2 - 15t + 6 = 4$
13. $d^2 + 10d + 18 = -7$
14. $4x^2 - 46 = 3$
15. $11a^2 - 32a + 17 = 20$
16. $4n^2 + 12n + 9 = 0$
17. $5x^2 - 11x - 3 = 2x + 3$
18. $6t^2 - 15t - 36 = 0$
19. $12h^2 + 40h + 32 = 0$

III. Challenge Problems

20. $3x^3 + 21x^2 + 36x = 0$
21. $2a^3 - 18a^2 + 36a = 0$
22. $x^4 - 13x^2 + 36 = 0$
23. $x^4 + 3x^2 - 4 = 0$
24. Find the dimensions of the rectangle below.



25. Find the dimensions of the rectangle below.



IV. Answer Key

1. $x = -2,3$
2. $x = -3,4$
3. $a = 3,6$
4. $t = -6,4$
5. $x = -3, -12$
6. $d = -8, -2$
7. $x = -2, -1$
8. $a = 5, -1$
9. $c = 3$
10. $x = \frac{4}{5}, 2$
11. $h = -4,4$
12. $t = \frac{1}{7}, 2$
13. $d = -5$
14. $x = -\frac{7}{2}, \frac{7}{2}$
15. $a = -\frac{1}{11}, 3$
16. $n = -\frac{3}{2}$
17. $x = -\frac{2}{5}, 3$
18. $t = -\frac{3}{2}, 4$
19. $h = -\frac{4}{3}, -2$
20. $x = -4, -3, 0$
21. $x = 0,3,6$
22. $x = -2,2, -3,3$
23. $x = -1,1$
24. 26 inches by 20 inches
25. 13 feet by 18 feet