

Name: _____

Date: _____

Quadratic Equations

Class: **Algebra**

Topic: Solving Quadratic Equations using Factoring
Key Idea

Methods for Solving Quadratic Equations

Method	Advantages	Disadvantages
Factoring	Straightforward when equation can be factored easily	Some equations are not factorable.
Graphing	-Can easily see the number of solutions -Use when approximate solutions are sufficient. -Can use a graphing calculator	May not give exact solutions
Using Square Roots	Use to solve equations of the form $x^2 = d$.	Can only be used for certain equations
Completing the Square	Best used when $a = 1$ and b is even	May involve difficult calculations
Quadratic Formula	-Can be used for <i>any</i> quadratic equation -Gives exact solutions	Takes time to do calculations

Method: Solve by Factoring

1) $x^2 + 10x = 24$

Solution: _____

Find the zeros for the function
 $F(x) = x^2 + 2x - 8$

Solution: _____

Find the zeros for the function
 $x^2 + 10 = -21$

CFU_Think-Pair-Share

Ex # 1 Find the zeros of the equation $x^2 - 6x + 8 = 0$

Solution: _____

Ex # 2 Find the zeros of the equation $x^2 - 2x = 15$

Solution: _____

Ex #3 $7x^2 + 21x = 0$

Solution: _____

Ex #4
 $x^2 - 36 = 0$

Solution: _____

Ex#5 $y^2 + 11y = -24$

Solution: _____

Model_ Method: Solve by Factoring

1) $3x^2 - 8x + 4 = 0$

Solution: _____

Find the x-intercepts: $g(x) = 6x^2 - x - 2$

Solution: _____

Find the zeroes: $10x^2 + x + 2 = 5$

Answer: _____

CFU_Think-Pair-Share

Ex #1 The height of a cliff diver above the water during a dive can be modeled by $h = -16t^2 + 16t + 96$, where h is the height in feet and t is the time in seconds. How long is the diver in the air?

Solution: _____

Ex 2 Find the zeros of the equation
 $X^2 - 2x = 15$

Solution: _____

Ex 3 Find the zeros of the equation
 $4x^2 - 12x + 5 = 0$

Solution: _____

Independent Practice _Find the zero of the equations.

1) $x^2 - 13x = 30$

2) $x^2 + 5x = 6$

3) $x^2 - 10x = -25$

4) $2x^2 + 9x = -7$

Solution: _____

Solution: _____

Solution: _____

Solution: _____

5) $5x^2 - 26x + 5 = 0$

6) $3x^2 + 8x + 5 = 0$

7) $2x^2 + 32x - 114 = 0$

8) $3x^2 + 14x = -8$

Solution: _____

Solution: _____

Solution: _____

Solution: _____

9) For which equation is the solution set {3, 4}?

- a. $x^2 + 3x + 4 = 0$
- b. $x^2 - 7x + 12 = 0$
- c. $x^2 + 12x + 7 = 0$
- d. $x^2 - 9x = 16$

10) For which equation is the solution set {3, 4}?

- e. $x^2 + 6x - 16 = 0$
- f. $x^2 - 6x - 10 = 0$
- g. $x^2 - 12x - 64 = 0$
- h. $x^2 - 16x = -6$

In each of these problems, an equation and one of its roots are given. Find:

- a) The value of k
- b) The second root

11) 5 is a root $x^2 - 7x + k = 0$

12) 5 is a root $x^2 - 3x + k = 0$

13) 7 is a root $x^2 - 3x = -k$

<p>14) Find the zeros of the equation $14x^2 + 3x = 2x + 3$</p> <p>Solution: _____</p>	<p>15) Find the zeros of the equation $8x^2 + 3x = 8x + 9$</p> <p>Solution: _____</p>	<p>16) Find the zeros of the equation $9x^2 - 36 = 0$</p> <p>Solution: _____</p>
<p>17) Find the zeros of the equation $5x^2 - 20 = 0$</p> <p>Solution: _____</p>	<p>18) Find the zeros of the equation $2x^2 - 8x = -8$</p> <p>Solution: _____</p>	<p>19) Find the zeros of the equation $4x^2 - 24x = -36$</p> <p>Solution: _____</p>
<p>20) Find the zeros of the equation $-16x^2 + 47x + 3 = 0$</p> <p>Solution: _____</p>	<p>21) Find the zeros of the equation $-3x^2 + 33x - 72 = 0$</p> <p>Solution: _____</p>	<p>22) Find the zeros of the equation $7x^2 + 35x = 5x - 8$</p> <p>Solution: _____</p>
<p>23) Find the zeros of the equation $6x^2 - 10x + 5 = 3x$</p> <p>Solution: _____</p>	<p>24) Find the zeros of the equation $7x^2 = 70x - 175$</p> <p>Solution: _____</p>	<p>25) Find the zeros of the equation $12x^2 - 108 = 0$</p> <p>Solution: _____</p>
<p>26) Find the zeros of the equation $2x^2 + 128 = -32x$</p> <p>Solution: _____</p>		

