

Solving Quadratic Equations  
Complete the Square

Complete the Square to Solve the Equations

1.)  $x^2 - 4x - 96 = 0$        $\frac{-4}{2} = -2$   
 $(-2)^2 = 4$

$$x^2 - 4x + 4 - 4 - 96 = 0$$

$$(x-2)^2 - 100 = 0$$

3.)  $n^2 - 8n - 84 = 0$        $\frac{-8}{2} = -4$

$$n^2 - 8n + 16 - 16 - 84 = 0 \quad (-4)^2 = 16$$

$$(n-4)^2 - 100 = 0$$

5.)  $n^2 - 8n + 7 = 0$        $\frac{-8}{2} = -4$

$$n^2 - 8n + 16 - 16 + 7 = 0 \quad (-4)^2 = 16$$

$$(n-4)^2 - 9 = 0$$

7.)  $x^2 - 14x + 30 = 6$        $\frac{-14}{2} = -7$

$$x^2 - 14x + 49 - 49 + 30 - 6 = 0 \quad (-7)^2 = 49$$

$$(x-7)^2 - 25 = 0$$

9.)  $x^2 + 12x - 4 = 9$        $\frac{12}{2} = 6$

$$x^2 + 12x + 36 - 36 - 4 - 9 = 0 \quad 6^2 = 36$$

$$(x+6)^2 - 49 = 0$$

Name: \_\_\_\_\_

Worksheet #1

$$\frac{-8}{2} = -4$$

2.)  $x^2 - 8x + 20 = 5$

$$(-4)^2 = 16$$

$$x^2 - 8x + 16 - 16 + 20 - 5 = 0$$

$$(x-4)^2 - 1 = 0$$

4.)  $5n^2 + 20n + 10 = -5$

$$\frac{4}{2} = 2$$

$$5n^2 + 20n + 10 + 5 = 0$$

$$2^2 = 4$$

$$5n^2 + 20n + 15 = 0$$

$$5(n^2 + 4n) + 15 = 0$$

$$5(n+2)^2 - 5 = 0$$

$$5[(n^2 + 4n + 4 - 4)] + 15 = 0$$

$$5(n+2)^2 - 20 + 15 = 0$$

6.)  $x^2 + 2x - 35 = 0$

$$\frac{2}{1} = 1$$

$$x^2 + 2x + 1 - 1 - 35 = 0$$

$$1^2 = 1$$

$$(x+1)^2 - 36 = 0$$

8.)  $n^2 + 12n + 10 = -10$

$$\frac{12}{2} = 6$$

$$n^2 + 12n + 10 + 10 = 0$$

$$6^2 = 36$$

$$n^2 + 12n + 36 - 36 + 20 = 0$$

$$(n+6)^2 - 16 = 0$$

10.)  $n^2 - 18n - 83 = 5$

$$\frac{-18}{2} = -9$$

$$n^2 - 18n - 88 = 0$$

$$(-9)^2 = 81$$

$$n^2 - 18n + 81 - 81 - 88 = 0$$

$$(n-9)^2 - 169 = 0$$