

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Completing the Squares Assignment

Find the value of  $c$  which will make the expression a perfect-square trinomial.

1.  $x^2 + 18x + c$

2.  $y^2 + 5y + c$

3.  $q^2 - 14q + c$

4.  $n^2 - n + c$

5.  $p^2 - 10p + c$

6.  $u^2 + 3u + c$

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

## Completing the Squares Assignment

Solve each equation by completing the square.

1.  $x^2 + 10x = 75$

2.  $z^2 - 18z = 63$

3.  $a^2 - 2a - 8 = 0$

4.  $x^2 + 8x - 9 = 0$

# Completing the Squares Assignment

**ANSWERS:** Find the value of  $c$  which will make the expression a perfect-square trinomial.

1.  $x^2 + 18x + c$

Here the coefficient of linear term is 18.

$$c = \left(\frac{18}{2}\right)^2 = 9^2 = 81$$

So, the trinomial is  $x^2 + 18x + 81$ .

2.  $y^2 + 5y + c$

Here the coefficient of linear term is 5.

$$c = \left(\frac{5}{2}\right)^2 = \frac{25}{4}$$

So, the trinomial is  $y^2 + 5y + \frac{25}{4}$ .

3.  $q^2 - 14q + c$

Here the coefficient of linear term is -14.

$$c = \left(\frac{-14}{2}\right)^2 = (-7)^2 = 49$$

So, the trinomial is  $q^2 - 14q + 49$ .

4.  $n^2 - n + c$

Here the coefficient of linear term is -1.

$$c = \left(\frac{-1}{2}\right)^2 = \frac{1}{4}$$

So, the trinomial is  $n^2 - n + \frac{1}{4}$ .

5.  $p^2 - 10p + c$

Here the coefficient of linear term is -10.

$$c = \left(\frac{-10}{2}\right)^2 = (-5)^2 = 25$$

So, the trinomial is  $p^2 - 10p + 25$ .

6.  $u^2 + 3u + c$

Here the coefficient of linear term is 3.

$$c = \left(\frac{3}{2}\right)^2 = \frac{9}{4}$$

So, the trinomial is  $u^2 + 3u + \frac{9}{4}$ .

# Completing the Squares Assignment

Solve each equation by completing the square.

1.  $x^2 + 10x = 75$

Here the term to add is  $\left(\frac{10}{2}\right)^2 = 5^2 = 25$

$$x^2 + 10x + 25 = 75 + 25$$

$$(x + 5)^2 = 100$$

$$x + 5 = \pm 10$$

$$x + 5 = 10 \quad ; \quad x + 5 = -10$$

$$x = 5 \quad ; \quad x = -15$$

2.  $z^2 - 18z = 63$

Here the term to add is  $\left(\frac{-18}{2}\right)^2 = (-9)^2 = 81$

$$z^2 - 18z + 81 = 63 + 81$$

$$(z - 9)^2 = 144$$

$$z - 9 = \pm 12$$

$$z - 9 = 12 \quad ; \quad z - 9 = -12$$

$$z = 21 \quad ; \quad z = -3$$

3.  $a^2 - 2a - 8 = 0$

Here the term to add is  $\left(\frac{-2}{2}\right)^2 = (-1)^2 = 1$

$$a^2 - 2a + 1 = 8 + 1$$

$$(a - 1)^2 = 9$$

$$a - 1 = \pm 3$$

$$a - 1 = 3 \quad ; \quad a - 1 = -3$$

$$a = 4 \quad ; \quad a = -2$$

4.  $x^2 + 8x - 9 = 0$

Here the term to add is  $\left(\frac{8}{2}\right)^2 = (4)^2 = 16$

$$x^2 + 8x + 16 = 9 + 16$$

$$(x + 4)^2 = 25$$

$$x + 4 = \pm 5$$

$$x + 4 = 5 \quad ; \quad x + 4 = -5$$

$$x = 1 \quad ; \quad x = -9$$