Review Exercise Set 6

Exercise 1: Solve the following equation.

$$x^2 + 7x + 10 = 0$$

Exercise 2: Solve the following equation.

$$4t^2 - 19t - 30 = 0$$

Exercise 3: Solve the following equation.

$$x^2 - 17x = -72$$

Exercise 4: Solve the following equation.

$$-19r + 14 = 3r^2$$

Exercise 5: Solve the following equation.

$$(a - 5)(a + 3) = 9$$

Review Exercise Set 6 Answer Key

Exercise 1: Solve the following equation.

$x^2 + 7x + 10 = 0$

Factor the trinomial on the left side of the equation

$(x + 2)(x + 5) = 0$

Set each factor equal to zero using the zero-factor property

$x + 2 = 0$ or $x + 5 = 0$

Solve for x in each equation

$x = -2$ or $x = -5$

Check the solutions

$x^2 + 7x + 10 = 0$	$x^2 + 7x + 10 = 0$
$(-2)^2 + 7(-2) + 10 = 0$	$(-5)^2 + 7(-5) + 10 = 0$
$4 - 14 + 10 = 0$	$25 - 35 + 10 = 0$
$0 = 0$	$0 = 0$

Solution: x = -2 or -5

Exercise 2: Solve the following equation.

$4t^2 - 19t - 30 = 0$
$(4t + 5)(t - 6) = 0$

$4t + 5 = 0$ or $t - 6 = 0$
$4t = -5$ or $t = 6$
$t = -\frac{5}{4}$ or $t = 6$

Exercise 2 (Continued):

Check

$4t^2 - 19t - 30 = 0$

$4(-\frac{5}{4})^2 - 19(-\frac{5}{4}) - 30 = 0$

$4(\frac{25}{16}) + \frac{95}{4} - 30 = 0$

$\frac{25}{4} + \frac{95}{4} - 30 = 0$

$\frac{120}{4} - 30 = 0$

$30 - 30 = 0$

$0 = 0$

$4t^2 - 19t - 30 = 0$

$4(6)^2 - 19(6) - 30 = 0$

$4(36) - 114 - 30 = 0$

$144 - 144 = 0$

$0 = 0$

Solution: **$t = -\frac{5}{4}$ or 6**

Exercise 3: Solve the following equation.

$x^2 - 17x = -72$

$x^2 - 17x + 72 = 0$

$(x - 8)(x - 9) = 0$

$x - 8 = 0$ or $x - 9 = 0$

$x = 8$ or $x = 9$

Check:

$x^2 - 17x = -72$

$(8)^2 - 17(8) = -72$

$64 - 136 = -72$

$-72 = -72$

$x^2 - 17x = -72$

$(9)^2 - 17(9) = -72$

$81 - 153 = -72$

$-72 = -72$

Solution: **x = 8 or 9**

Exercise 4: Solve the following equation.

$-19r + 14 = 3r^2$
$0 = 3r^2 + 19r - 14$
$0 = (3r - 2)(r + 7)$

$3r - 2 = 0$ or $r + 7 = 0$
$3r = 2$ or $r = -7$
$r = \frac{2}{3}$ or $r = -7$

Check:

$-19r + 14 = 3r^2$
$-19(\frac{2}{3}) + 14 = 3(\frac{2}{3})^2$
$-\frac{38}{3} + 14 = 3(\frac{4}{9})$
$-\frac{38}{3} + \frac{42}{3} = \frac{4}{3}$
$\frac{4}{3} = \frac{4}{3}$

$-19r + 14 = 3r^2$
$-19(-7) + 14 = 3(-7)^2$
$-19r + 14 = 3r^2$
$133 + 14 = 3(49)$
$147 = 147$

Solution: **$r = \frac{2}{3}$ or -7**

Exercise 5: Solve the following equation.

$(a - 5)(a + 3) = 9$
$a^2 + 3a - 5a - 15 = 9$
$a^2 - 2a - 15 - 9 = 0$
$a^2 - 2a - 24 = 0$
$(a - 6)(a + 4) = 0$

$a - 6 = 0$ or $a + 4 = 0$
$a = 6$ or $a = -4$

Check:

$(a - 5)(a + 3) = 9$
$(6 - 5)(6 + 3) = 9$
$(1)(9) = 9$
$9 = 9$

$(a - 5)(a + 3) = 9$
$(-4 - 5)(-4 + 3) = 9$
$(-9)(-1) = 9$
$9 = 9$

Solution: **a = 6 or -4**