

Quadratic Formula and Completing the Square WS

Solve each equation with the quadratic formula. Round answers to two decimal places, where necessary.

1) $4n^2 - 2n = 72$

$$4n^2 - 2n - 72 = 0$$

$$a=4, b=-2, c=-72$$

$$n = \frac{2 \pm \sqrt{(-2)^2 - 4(4)(-72)}}{2(4)}$$

$$= \frac{2 \pm \sqrt{1156}}{8} \quad 34$$

$$n = \frac{2-34}{8} \quad n = \frac{2+34}{8}$$

$$n = -4, n = 4.5$$

2) $12p^2 - 17 = -12p$

$$+12p \quad +12p$$

$$12p^2 + 12p - 17 = 0$$

$$a=12, b=12, c=-17$$

$$p = \frac{-12 \pm \sqrt{(12)^2 - 4(12)(-17)}}{2(12)} \quad \sqrt{960} \quad 30.98$$

$$p \approx \frac{-12-30.98}{24} \quad p \approx \frac{-12+30.98}{24}$$

$$p \approx -1.79, p \approx 0.79$$

Solve each equation by completing the square.

3) $x^2 - 18x + 15 = -2$

$$-15 \quad -15$$

$$x^2 - 18x + 81 = -17 + 81$$

$$\left(\frac{-18}{2}\right)^2$$

$$\sqrt{(x-9)^2} = \sqrt{64}$$

$$x-9 = -8 \quad x-9 = 8$$

$$+9 \quad +9 \quad +9 \quad +9$$

$$x = 1, x = 17$$

4) $a^2 - 6a - 22 = -6$

$$+22 \quad +22$$

$$a^2 - 6a + 9 = 16 + 9$$

$$\left(\frac{-6}{2}\right)^2$$

$$\sqrt{(a-3)^2} = \sqrt{25}$$

$$a-3 = -5 \quad a-3 = 5$$

$$+3 \quad +3 \quad +3 \quad +3$$

$$a = -2, a = 8$$