

9. Solve the following system of equations

$$-2x^2 + y^2 + 24y + 76 = 0$$

$$x + 3y + 2 = 0$$

$$\rightarrow x = -3y - 2$$

$$\frac{-17y^2 + 68 = 0}{-17}$$

$$y^2 - 4 = 0$$

$$y = \pm 2$$

$$y = 2$$

$$y = -2$$

$$x + 6 + 2 = 0$$

$$x - 6 + 2 = 0$$

$$x = -8$$

$$x = 4$$

$$\boxed{(-8, 2)}$$

$$\boxed{(4, -2)}$$

$$-2(-3y - 2)^2 + y^2 + 24y + 76 = 0$$

$$-2(9y^2 + 12y + 4) + y^2 + 24y + 76 = 0$$

$$-18y^2 - 24y - 8 + y^2 + 24y + 76 = 0$$

10. Simplify the following in to simplest a + bi form

$$(8 - 3i)^2 = (8 - 3i)(8 - 3i)$$

$$64 - 24i - 24i + 9i^2$$

$$64 - 48i + 9(-1) = 64 - 48i - 9 = 55 - 48i$$

11. Which values should be given to a, b, and c so that the linear system shown has (-1, 6, 1) as its only solution?

$$6r - s + 3t = a$$

$$\rightarrow -6 - 6 + 3 = -9 = a$$

$$5r + 5s - 5t = b$$

$$\rightarrow -5 + 30 - 5 = 20 = b$$

$$3r - s + 4t = c$$

$$\rightarrow -3 - 6 + 4 = -5 = c$$