

Correct. $x^2 + 2x + 3x + 6 = x(x + 2) + 3(x + 2)$, so

$$(x + 2)(x + 3) = 0$$

$$x + 2 = 0 \text{ or } x + 3 = 0$$

$$x = -2 \text{ or } x = -3$$