A few notes:

2 very important things to remember when FACTORING!

① always factor out a GCF

② always make your leading coefficient positive

Ex: $-x^2 + 16x - 28 = 0$

$-1 \quad -1 \quad -1$

$-1(x^2 - 16x + 28) = 0$

$-1(x-14)(x-2) = 0$

$x-14=0 \quad x-2=0$

$x = 14, 2$

$-14 + -2 = -16$

$-14 \cdot -2 = 28$

Ex: $m^2 + 22 = -23m$

$+23m \qquad +23m$

$m^2 + 23m + 22 = 0$

$(m+22)(m+1) = 0$

$m+22=0 \quad m+1=0$

$m = -22, -1$

$22 + 1 = 23$

$22 \cdot 1 = 22$

Other names for solutions:

① roots ② x-intercepts ③ zeroes

What is the difference between the 2 directions below?

FACTOR: $\frac{-2x^2}{-2} + \frac{12x}{-2} - \frac{18}{-2}$

$-2(x^2 - 6x + 9)$

* $-2(x-3)(x-3)$

SOLVE: $-2x^2 - 18 = -12x$

$+12x \quad +12x$

$-2x^2 + 12x - 18 = 0$

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

$x-3=0 \quad x-3=0$

$x=3$