**Solving Quadratics/Solving for the Roots**

Place your function in standard form and set the function equal to zero.

This means y = 0, we now have one equation and one variable. We will be finding the x intercepts (x, 0) (x, 0)

**Standard form**

f(x) = ax2 + bx + c

x2 + 5x + 6 = 0

**List terms**

**a = 1 b = 5 c = 6**

**Factors of c = 6**

**1 \* 6 2 \* 3**

**-1 \* -6 -2 \* -3**

**Add up to b = 5**

**1 + 6 = 7 2 + 3 = 5**

**-1 + -6 = -7 -2 + -3 = -5**

**Write in factored form**

x2 + 5x + 6 = 0

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

**Set both equal to zero**

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

Solve for both factors and state your answers.

Be careful with word problems, negative answers are not appropriate for distance and time.

State the roots or the x intercepts if you are asked to do so.

**State your answers clearly!**

x **+ 2** = 0 x **+ 3** = 0

x = -2 x = -3

The roots of the equation are -2 and 3

The y intercepts are (-2, 0) and (-3, 0)

Split the equation in two and set both equal to zero.

Since the two factors are being multiplied, if either equals zero, the entire function equals zero

Write your function in factored form

(x \_\_\_\_\_) (x\_\_\_\_\_) = 0

**INCLUDE THE SIGNS!**

Choose the set of factors that adds up to the b term. You must use two factors from the same group.

**INCLUDE THE SIGNS!**

Find the factors of the c term. The factors are the numbers that multiply to make the c term. You can keep this off to the side as well

**DO NOT FORGET NEGATIVE NUMBERS**

List your terms a, b and c. You can do this on the side of the paper so you keep your function neat