A Review of some Basic Factoring Strategies

Today we will look at some (not all) of the factoring strategies from the grade 10 math courses. Remember that factoring is the exact opposite of expanding.

Factoring: Finding the Greatest Common Factor

Expand (simplify) each of the following.

a) $2x(x-6)$

b) $-3x(2x+5)$

Factor each of the following, by identifying the greatest common factor.

a) $3x^2 + 9x$

b) $4y^2 - 16y$

c) $5f^2 - 3f$

Factoring: Simple Trinomials

Expand each of the following. Look for a pattern!

a) $(x+4)(x+3)$

b) $(y + 2)(y + 3)$

c) $(x - 3)(x + 2)$

d) $(x - 4)(x - 6)$

Did you see the pattern? The above are called simple trinomials. They have the form $x^2 + bx + c$

Use your "pattern" to factor each of the following.

a) $x^2 + 9x + 20$

b) $x^2 - 3x - 15$

c) $x^2 - x - 30$

d) $s^2 - 5s + 6$

e) $e^2 - 8e + 12$

You may also remember how to factor trinomials such as the following:
(but its ok if you don't)

$2x^2 + 5x - 12$

Solving Quadratic Equations

Remember that we can solve a linear equation by *isolating the variable.*

$2\text{x} - 5 = 13$

This strategy sometimes works for quadratic equations as well:

$x^2 - 11 = 14$

$2x^2 - 4 = 16$

However sometimes it does not:

$x^2 - 5x + 6 = 0$

Solve the following by factoring.

$x^2 + 8x + 15 = 0$

$x^2 - x = 12$

$4n^2 + 8n = 0$

But what if a quadratic equation cannot be factored?

Solve $x^2 + 9x - 1 = 0$

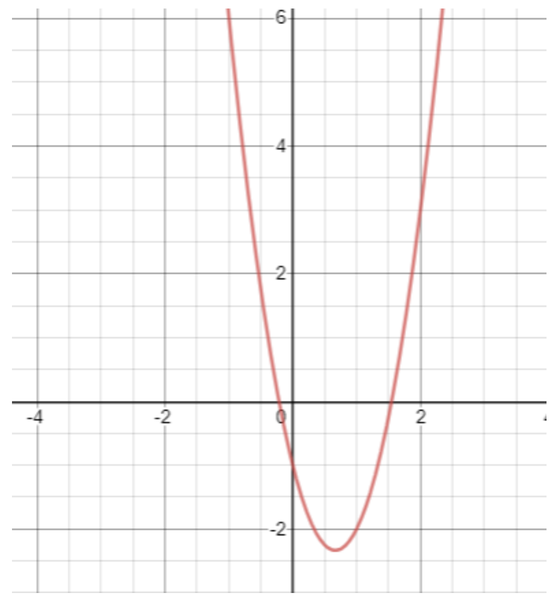
In this case we can use the quadratic formula.

If $ax^2 + bx + c = 0$ then $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Solve using the quadratic formula:

$x = 1 - 6x^2$

Find the x and y-intercepts for the graph of $y = 3x^2 - 4x - 1$



A model rocket is launched upwards with a velocity of 16 m/s. The equation that models the height of the rocket is $h(t) = -4.9t^2 + 16t + 1.1$ where *h(t)* is the height (in metres) after *t* seconds.

a) Find the initial height of the rocket.

b) How long is the rocket in the air for? (round to 2 decimal places)