Factoring Review

common factoring

- a number, variable or both is common to every term and can be divided out
- must take the greatest common factor
- check by multiplying back out

ex. $2x^2 + 4x^2y + 2x^3$

- 2, x, x^2 , $2x^2$ can all be divided evenly
- use $2x^2$ as it is the biggest

$= 2x^2(1 + 2y + x)$

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quadratic factoring

- must be in the form $ax^2 + bx + c$ where a, b, and c are integers
- check to see if a can be common factored out (2 in this case)
- want two numbers that multiply out to c and add up to b
  (-10 x 3 = 30 and -10 + 3 = -7)

$2x^2 - 14x - 60$

$= 2(x^2 - 7x - 30)$

$= 2(x -10)(x + 3)$

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difference of squares

- a special type of quadratic factoring
- two numbers that are separated by a -ve sign that have been squared (each can have square root determined that are whole numbers or variables)
- take the square of both and put in two sets of brackets with differing signs.
- check by multiplying out
- $a^2x^2 - b^2y^2 = (ax-by)(ax+by)$

ex1.
$x^2 - 49$

$=(x - 7)(x + 7)$

ex2
$25x^2 - 64$

$= (5x - 8)(5x + 8)$

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perfect squares Trinomial

- a special type of quadratic factoring
- $a^2x^2 + 2abx + b^2$
- both the first term and the last term can have square roots taken easily
  $25^{½} = 5$, $36^{½} = 6$,
  5 x 6 x 2 = 60
- the middle term is those square roots multiplied together and by 2
- $(ax + b)^2$
- the sign used is the second sign in the trinomial

ex:

$25x^2 + 60x + 36$

$= (5x + 6)^2$

ex2

$36x^2 - 48x + 16$

$= (6x - 4)^2$