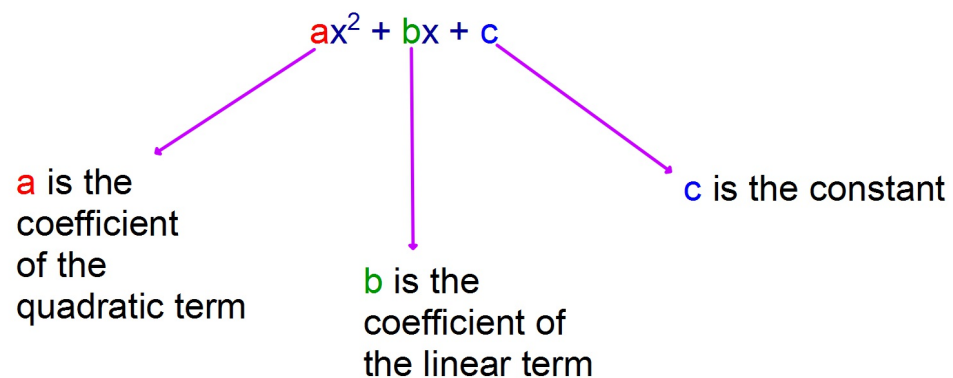


## Standard Form of a Quadratic:



## Factoring out GCF first.

You should always look for a GCF before you do any other kind of factoring!

Factor completely.

1.  $18b^2 - 3b - 10$

$\text{GCF}$

$\begin{array}{r|rr} 12 & -180 & -15 \\ & -3 & \end{array}$

$\begin{array}{r|rr} 6b & 18b^2 & 12b \\ -5 & -15b & -10 \end{array}$

$(3b+2)$

$(6b-5)$

Factor completely.

2.  $8w^3 - 52w^2 + 84w$

$4w(2w^2 - 13w + 21)$

$\begin{array}{r|rr} -7 & 42 & -6 \\ & -13 & \end{array}$

$\begin{array}{r|rr} 2w & 2w^2 & -6w \\ -7 & -7w & 21 \end{array}$

$4w(2w-7)(w-3)$

Factor completely.

3.  $g^2 - 2g - 63$

Handwritten solution for factoring  $g^2 - 2g - 63$ . The table shows the numbers 9, 7, -9, and -63. The numbers 9 and 7 are crossed out, and -9 and -63 are circled. An arrow points from the circled numbers to the factors  $(g+7)(g-9)$ .

When factoring a quadratic when  $a = 1$ :

The numbers found when filling out the X become the constants inside the factors.

factor:  $p^2 + 16p + 48 = (p+12)(p+4)$

Handwritten X diagram for factoring  $p^2 + 16p + 48$ . The top-left is 12, top-right is 48, bottom-left is 16, and bottom-right is 4. The X is drawn across the numbers.

factor each:

1.  $y^2 - 14y + 48$

Handwritten solution for factoring  $y^2 - 14y + 48$ . It shows the factors  $(y-8)(y-6)$  and an X diagram with 8, 6, -2, and -6.

2.  $y^2 + 6y - 135$

Handwritten solution for factoring  $y^2 + 6y - 135$ . It shows the factors  $(y+15)(y-9)$  and an X diagram with 15, 9, +15, and -9.

Factor:

1.  $c^2 - 2cd - 8d^2$

Handwritten solution for factoring  $c^2 - 2cd - 8d^2$ . It shows the factors  $(c-4d)(c+2d)$  and an empty 2x2 grid.

2.  $8x^2 + 2xy - 3y^2$

Handwritten solution for factoring  $8x^2 + 2xy - 3y^2$ . It shows the factors  $(4x+3y)(2x-y)$  and an X diagram with 4x, 3y, 2x, and -y.

You can now finish hwk #17

Sec 9-6

pages 483-484

Problems 33-36, 45, 46, 53, 57

Factor.

$$12x^2 - 20x$$

$$4x(3x - 5)$$

GCF!!!

Always look for GCF first.  
Sometimes that is all  
you can do!

expanding →

$$(a + b)(a - b) = a^2 - b^2$$

Expand each.

1.  $(x + 15)(x - 15)$

$$x^2 - 225$$

2.  $(3k - 7)(3k + 7)$

$$9k^2 - 49$$

expanding →

$$(a + b)(a - b) = a^2 - b^2$$

← factoring

factor

$$(25x^2) - (64)$$

$$\sqrt{25x^2} =$$

$$\sqrt{64} =$$

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

Sec 9-7: Factoring Special Cases

Factoring the Difference of Perfect Squares:

Perfect Squares:

1  
4  
9  
16  
25  
36  
49  
64  
81  
100

Factor each.

1.  $144Q^2 - 25$

2.  $81c^4 - 100d^2$

$(12Q+5)(12Q-5)$   $(9c^2+10d)(9c^2-10d)$

3.  $98k^2 - 128$

4.  $\frac{1}{9}g^2 - \frac{4}{49}\left(\frac{1}{3}g - \frac{2}{7}\right)$

$2(49k^2 - 64)$   
 $2(7k+8)(7k-8)$

$\left(\frac{1}{3}g + \frac{2}{7}\right)$

Expand each.

1.  $(w-8)^2$

$w^2 - 16w + 64$

2.  $(a+5)^2$

$a^2 + 10a + 25$

Factor each.

1.  $R^2 + 14R + 49$

$(R+7)^2$

2.  $g^2 - 22g + 121$

$(g-11)^2$

~~$\begin{array}{cc} 121 & \\ -11 & -11 \\ -22 & \end{array}$~~

Factor:

$$4z^2 + 20z + 25 = (2z+5)^2$$

$4z^2$	$+10z$
$+10z$	$25$

Don't confuse these two: They are NOT the same

$$(h-9)^2$$

$$h \pm 9$$