

You may choose your own seats - if you leave open tables in the middle of the classroom, you may be asked to move

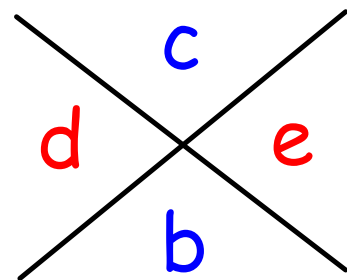
Write down everything you remember about factoring (reverse FOIL-ing) quadratic functions?

When we factor, we take the quadratic from **Standard Form**

$$ax^2 + bx + c = 0$$

to **Factored Form**

$$(x-d)(x-e) = 0$$



when $a = 1$, d & e are the two numbers that multiply to c and add to b .

From your worksheet.

Solve each equation by factoring.

$a=1$
 $b=-7$
 $c=12$

2) $n^2 - 7n + 12 = 0$

$(n-3)(n-4) = 0$

$\begin{array}{r} n-3=0 \\ +3 \quad +3 \\ \hline n=3 \end{array}$

 $\& \quad$
 $\begin{array}{r} n-4=0 \\ +4 \quad +4 \\ \hline n=4 \end{array}$

$n=3, 4$

~~$\begin{array}{cc} & 12 \\ -3 & & -4 \\ & -7 & \end{array}$~~

$6 \cdot 2$
 $3 \cdot 4$
 $1 \cdot 12$

10) $n^2 - 2n - 29 = 6$

$a=1$
 $b=-2$
 $c=-35$

$\begin{array}{r} -6 \quad -16 \\ \hline n^2 - 2n - 35 = 0 \end{array}$

$(n-7)(n+5) = 0$

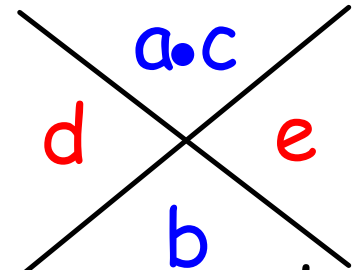
$n=7, -5$

~~$\begin{array}{cc} & -35 \\ 5 & & -7 \\ & -2 & \end{array}$~~

$5 \cdot 7$
 $35 \cdot 1$

When $a \neq 1$, we have to guess and check or **factor by grouping**. We still make the X, and now look for the factors of $a \cdot c$ that add to b .

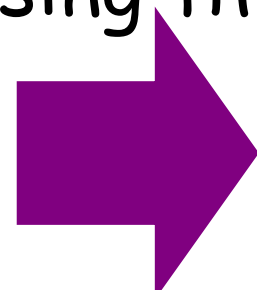
we rewrite b as $dx + ex$,



group together our first two and last two terms to **factor by**

grouping. Let's look at the

following two examples using this method.



Solve each equation by factoring.

$a = 3$
 $b = 16$
 $c = -64$

13) $3n^2 + 16n - 64 = 0$

$(3n^2 + 24n) - (8n - 64) = 0$

$(3n)(n+8) - 8(n+8) = 0$

$(n+8)(3n-8) = 0$

$n = -8, \frac{8}{3}$

$\begin{array}{r} a \cdot c \\ 3 \cdot -64 \\ -192 \\ -8 \quad 24 \\ 16 \end{array}$

$\begin{array}{r} 3n - 8 = 0 \\ + 8 \quad + 8 \\ \hline 3n = 8 \\ n = \frac{8}{3} \end{array} \quad \begin{array}{l} 2 \cdot 96 \\ 3 \cdot 64 \\ 4 \cdot 48 \\ 6 \cdot 32 \\ * 8 \cdot 24 \end{array}$

19) $8a^2 - 35a + 12 = 0$

$a = 8$
 $b = -35$
 $c = 12$
 $(8a^2 - 32a) - (3a + 12) = 0$

$(8a)(a-4) - 3(a-4) = 0$

$(a-4)(8a-3) = 0$

$a = 4, \frac{3}{8}$

$\begin{array}{r} 8 \cdot 12 \\ 96 \\ -3 \quad -32 \\ -35 \end{array}$

$\begin{array}{l} 2 \cdot 48 \\ 3 \cdot 32 \end{array}$

Homework

Solving Quadratics by
Factoring WKS