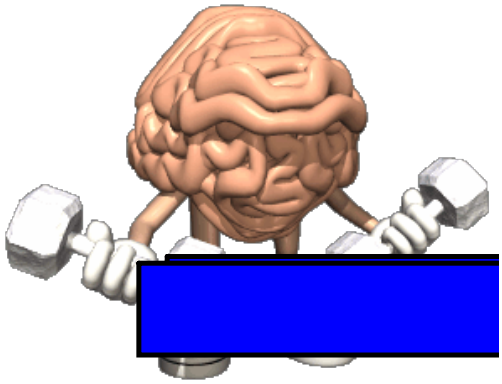
Warm Up



Factor the following:

1) $n^2 + 13n + 42$

$(n+6)(n+7)$

2) $8xy^2 - 24x^2y^2$

$8xy^2(1-3x)$

3) $-42y^3 + 49y^2x + 14y^2x^2$

$7y^2(-6y + 7x + 2x^2)$

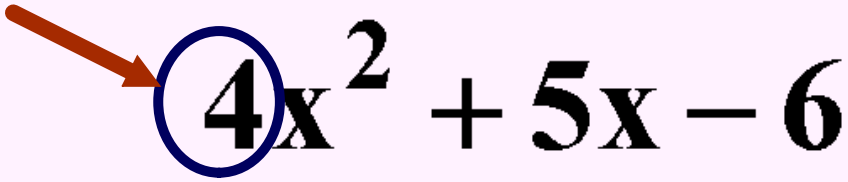
$-7y^2(6y - 7x - 2x^2)$

4) $n^2 - 9n - 36$

$(n+3)(n-12)$

DECOMPOSITION

If there is a *numerical coefficient* in front of x^2, then we use a method for factoring called *DECOMPOSITION.*



Hard Trinomials

- has three terms with the form...

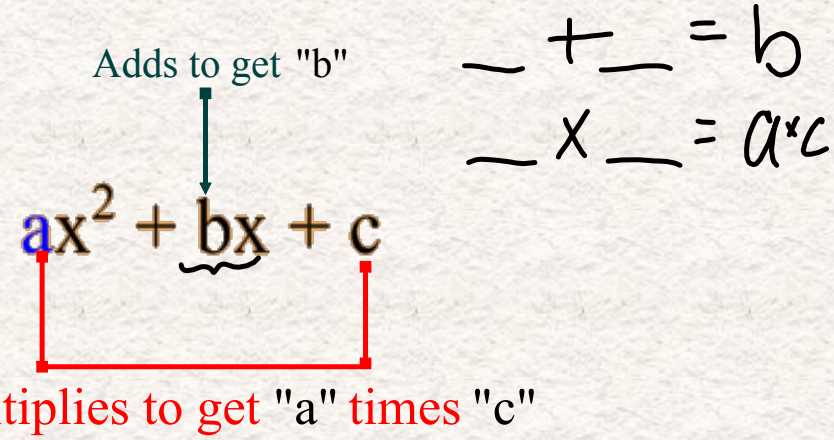
$$ax^2 + bx + c$$

- a hard trinomial has an "a" value **not equal to 1**.

- we use a method of decomposition to factor them.

DECOMPOSITION METHOD

- here's how it goes... "What two numbers?"



- once you find the two numbers, use them to break the MIDDLE TERM into two pieces (decomposition).

- then, factor by grouping.


cdli Interactive
Global Actions
Go to beginning
Go back one frame
Go forward one frame
Go to end
Window Actions
Go to the first step
Go back one step
Go forward one step
Go to the last step
Show an object
Show

Multiply

$$4x^2+5x-6$$

$+8 \quad -3$

$\frac{}{+8} + \frac{}{-3} = +5$

$\frac{}{+8} \times \frac{}{-3} = -24$

24

1 x 24

2 x 12

3 x 8

4 x 6

$4x^2 + 8x - 3x - 6$

$4x \quad 4x \quad -3 \quad -3$

$4x(x+2) - 3(x+2)$

$(4x-3)(x+2)$

Always check the following when you are asked to factor:

1) G.C.F (# and Letters)
2) Simple Trinomial
3) Hard Trinomial ...

Factor Completely!

1. $2x^2+5x+3$

$+2 + +3 = +5$

$+2 \times +3 = 2\times3 = 6$

$\frac{2x^2}{2x}$

$2x^2+2x+3x+3$

$2x(x+1)+3(x+1)$

$(2x+3)(x+1)$

$2x^2+3x+2x+3$

$x(2x+3)+1(2x+3)$

$(x+1)(2x+3)$

Factor Completely!

2. $10x^2+13x-3$

$-2 + 15 = +13$

$- \times - = \cdot 30$

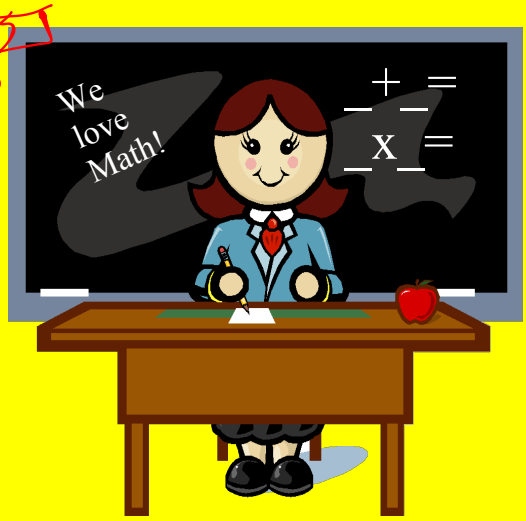
30
1 × 30
2 × 15
3 × 10
5 × 6

$10x^2+15x-2x-3$

$5x(2x+3)-1(2x+3)$

$(5x-1)(2x+3)$

1. GCF
2. Simple Tri
3. Hard Tri



4. $\frac{2x^2+6x+4}{2}$ $\frac{}{2}$ $\frac{}{2}$

$2(x^2+3x+2)$ simple tri

$+2 \cdot +1 = +2$
$-x - = +2$

$2(x+2)(x+1)$

1. GCF ✓
2. Simple Tri ✓
3. Hard tri

Practice

Do ten questions for homework

Math 10B

Name_____

Factoring: Hard Trinomials

Date_____

Factor each completely.

1) $6m^2 + 2m - 8$

2) $3x^2 - 16x + 5$

3) $28r^2 - 116r + 16$

4) $2n^2 - 17n - 9$

5) $3r^2 + 2r - 16$

6) $5a^2 - 34a + 45$

7) $8x^2 - 50x + 50$

8) $4n^2 - 15n + 9$

9) $4x^2 + 17x + 4$

10) $4m^2 + 13m + 10$

11) $4b^2 - 3b - 10$

12) $8n^2 - 26n - 24$

13) $u^2 + 16uv + 64v^2$

14) $2x^2 - 22xy + 48y^2$

15) $x^2 - 11xy + 30y^2$

16) $4a^2 - 8ab - 12b^2$