

1. Simplify: $(9x^2 - 5)^2$ $(9x^2 - 5)(9x^2 - 5)$

$9x^2$	$81x^4$	$-45x^2$
-5	$-45x^2$	25

$$81x^4 - 90x^2 + 25$$

2. Solve the following system:

$$\begin{array}{r} -3x + 4y = -50 \\ + \quad 3x - 7y = 65 \\ \hline -3y = 15 \\ \quad -3 \quad -3 \\ \quad y = -5 \end{array}$$

$$(10, -5)$$

$$\begin{array}{r} -3x + 4(-5) = -50 \\ -3x - 20 = -50 \\ \quad +20 \quad +20 \\ \hline -3x = -30 \\ \quad -3 \quad -3 \\ \quad x = 10 \end{array}$$

3. Which is a binomial factor of $(6x^2 + 3x - 14x - 7)$

- a. $(6x - 1)$ b. $(2x - 7)$ c. $(3x + 1)$ d. $(3x - 7)$

$$\begin{aligned} &(6x^2 + 3x)(-14x - 7) \\ &\textcircled{3x} \textcircled{(2x + 1)} \textcircled{-7} \textcircled{(2x + 1)} \\ &\quad (3x - 7)(2x + 1) \end{aligned}$$

Factoring Trinomials

$$ax^2 + bx + c$$

$$x^2 + 5x + 6$$

Factoring Trinomials with a GCF

Step 1: Factor out the GCF

***List out the A, B & C values**

Step 2: Multiply A and C

Step 3: List Factor Pairs of AC

Step 4: Find the factor pair that has a sum of B.

Step 5: Re-write as four terms

Step 6: Factor by grouping

*From the half sheet

$$\frac{2b^2}{2} + \frac{10b}{2} + \frac{12}{2}$$

$$2(b^2 + 5b + 6)$$

$$(b^2 + 2b)(b + 3)$$

$$b(b+2) \cdot 3(b+2)$$

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

$$\begin{aligned} a &= 1 \\ b &= 5 \\ c &= 6 \\ ac &= \frac{6}{2/3} \end{aligned}$$

Complete these on the back of the half sheet

Example 1: $a^2 + 8a + 15$

$$\begin{array}{l} a=1 \\ b=8 \\ c=15 \\ ac=15 \\ \hline 3 \mid 5 \end{array}$$

$(a^2 + 3a) + (5a + 15)$
 $(a)(a+3) \quad (5)(a+3)$
 $(a+5)(a+3)$

Example 2: $2x^2 + 13x + 6$

$$\begin{array}{l} a=2 \\ b=13 \\ c=6 \\ ac=12 \\ \hline 1 \mid 12 \\ 12 \mid 1 \end{array}$$

$(2x^2 + x) + (12x + 6)$
 $(x)(2x+1) \quad (6)(2x+1)$
 $(x+6)(2x+1)$
 $(2x+1)(x+6)$

Example 3: $3a^2 + 8a + 4$

1. $x^2 + 7x + 12$ $a=1$ $b=7$ $c=12$

$ac = \frac{12}{3|4}$

$(x^2 + 3x) + (4x + 12)$

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

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

2. $n^2 + 9n + 20$ $a=1$ $b=9$ $c=20$

$ac = 20$

1	20
2	10
4	5
5	4
10	2
20	1

$(n^2 + 4n) + (5n + 20)$

$(n)(n+4) + (5)(n+4)$

$(n+5)(n+4)$

3. $h^2 + 9h + 18$ $a=1$ $b=9$ $c=18$

$ac = 18$

1	18
2	9
3	6

$(h^2 + 3h) + (6h + 18)$

$(h)(h+3) + (6)(h+3)$

$(h+6)(h+3)$

4. $a^2 + 10a + 24$

$(a^2 + 4a) + (6a + 24)$

$a=1$ $(a)(a+4) + (6)(a+4)$

$b=10$

$c=24$

$(a+6)(a+4)$

$ac = 24$

$\frac{24}{1|24}$

1	24
2	12
3	8
4	6

$$\textcircled{31} \quad \frac{4n^2}{4} + \frac{12n}{4} + \frac{8}{4}$$

$$4(n^2 + 3n + 2)$$

$$(n^2 + n)(n + 2)$$

$$\textcircled{n}(n+1)\textcircled{2}(n+1)$$

$$\boxed{4(n+2)(n+1)}$$

$$a=1 \quad b=3 \quad c=2$$

$$ac = \frac{2}{1} \mid 2$$

$$a=1 \quad b=3 \quad c=-18$$

$$ac = -18$$

-1		18
-2		9
-3		6