Objectives:

- Students will be able to factor ~~and~~ any quadratic trinomial ax^2+bx+c

Vocabulary:

- **Factoring quadratic trinomials of the form**: $ax^2 + bx + c$ $a \neq 1$
  - The 'a-c' method

Steps:

1. Factor out any common factors
2. Find '$a \cdot c$' and identify 'b' when your polynomial is of the form: $ax^2 + bx + c$
3. Find two numbers that multiply to '$a \cdot c$' and add to 'b'
4. Rewrite the middle term (bx) as the two numbers
5. Factor by grouping

Distribution:

1. $(2x - 1)(x - 5)$

$= 2x^2 - 10x - 1x + 5$

$= 2x^2 - 11x + 5$

2. $(p - 9)(9p - 8)$

$= 9p^2 - 8p - 81p + 72$

$= \boxed{9p^2 - 89p + 72}$

Example Set 1: Factor each quadratic trinomial.

1. $2x^2 - 11x + 5$

ac
(2)(5)
10
2, 5
-1, -10

$= 2x^2 - x - 10x + 5$

$= x(2x - 1) - 5(2x - 1)$

$= \boxed{(2x - 1)(x - 5)}$

2. $6p^2 - 17p + 12$

ac
(6)(12)
72
6, 12
2, 36
-9, -8
3, 24
4, 18
1, 72

$= 6p^2 - 9p - 8p + 12$

$= 3p(2p - 3) - 4(2p - 3)$

$= \boxed{(2p - 3)(3p - 4)}$

Secondary Math 2

Name_____ ID: 1

6.4 - In Class Assignment

Date_____ Period____

Factor each completely.

1) $10x^2 + 21x + 8$

ac: 80

10,8
2,40
20,4
1,80
5,16

$10x^2+5x+16x+8$

$= 5x(2x+1)+8(2x+1)$

$= (2x+1)(5x+8)$

2) $9x^2 + 9x - 70$

ac: -630

-63,10
-9,70
-120,3
-18,35
-126,5
-21,30

$= 9x^2-21x+30x-70$

$= 3x(3x-7)+10(3x-7)$

$= (3x-7)(3x+10)$

3) $9n^2 - 27n - 10$

ac: -90

-9,10
+3,-30
-2,45

$= 9n^2+3n-30n-10$

$= 3n(3n+1)-10(3n+1)$

$= (3n+1)(3n-10)$

4) $4x^2 - 29x - 63$

ac: -252

4,63
3,84
6,42
+7,-36

$= 4x^2+7x-36x-63$

$= x(4x+7)-9(4x+7)$

$= (4x+7)(x-9)$

5) $10b^2 + 7b - 45$

ac: -450

-45,10
-5,90
+25,-18
15,-30

$= 10b^2+25b-18b-45$

$= 5b(2b+5)-9(2b+5)$

$= (2b+5)(5b-9)$

6) $10v^2 - v - 2$

ac: -20

-2,10
-4,5
-5,4

$= 10v^2-5v+4v-2$

$= 5v(2v-1)+2(2v-1)$

$= (2v-1)(5v+2)$

7) $-54x^2 + 240x - 96$

ac: 9·16

144

12,12
9,16
2,72
1,144
48,3
-4,36

$= -6(9x^2-40x+16)$

$= -6(9x^2-4x-36x+16)$

$= -6(x(9x-4)-4(9x-4))$

$= -6(9x-4)(x-4)$

8) $-4x^2 + 41x - 72$

AC: 288

4,72
-32,-9
1,288
2,144

$= -1(4x^2-41x+72)$

$= -1(4x^2-32x-9x+72)$

$= -1(4x(x-8)-9(x-8))$

$= -1(x-8)(4x-9)$

OR $(-x+8)(4x-9)$

OR $(x-8)(-4x+9)$