Factoring

Trinomials when a = 1

Name: Hirsch

Period: 5th **Date:** _____

Steps

1. Factor anything out (#'s & Variables)
2. Put in standard form. ($ax^2 + bx + c$)
3. Multiply a and c.
4. Make 2 sets of parentheses
5. Put your variable at the beginning of each set of ( ).
6. Put your factors of ac, who when added together equal b at the end of each ( ).

Pay attention to signs!!

* The 2nd sign determines if your signs are the same or different.
  - If negative (–), signs will be different.
    (+)(–)
  - If positive (+), signs will be the same.
    (+)(+) if 1st sign is (+)
    (–)(–) if 1st sign is (–)

Ex 1. $x^2 + 9x + 20$

$(x+4)(x+5)$

$a \cdot c = 1 \cdot 20$

20

1 20

2 10

4 5

Ex 2. $x^2 - 7x - 18$

$(x+2)(x-9)$

$a \cdot c = -18$

1 18

2 -9

3 6

Ex 3. $x^2 + 10 - 11x$

$x^2 - 11x + 10$

$(x-1)(x-10)$

$a \cdot c = 10$

-1 -10

2 5

Ex 4. $\frac{5x^2}{5} + \frac{15x}{5} - \frac{20}{5}$

$5(x^2 + 3x - 4)$

$5(x-1)(x+4)$

$a \cdot c = -4$

-1 4

2 2

You Try:

1. $x^2 + 3x - 18$

$(x-3)(x+6)$

$a \cdot c = -18$

1 18

2 9

-3 6

2. $x^2 + 8x + 12$

$(x+2)(x+6)$

$a \cdot c = 12$

1 · 12

2 6

3 4

6, 9

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More Practice:

1. $x^2 + 8x + 12$

$(x+2)(x+6)$

2. $x^2 + 10x + 21$

$(x+3)(x+7)$

3. $x^2 + 12x + 11$

$(x+11)(x+1)$

4. $x^2 + 10 + 7x$

$x^2+7x+10$

$(x+2)(x+5)$

10
2 5
1 10

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

$(x-5)(x-1)$

6. $x^3 - 3x - 4$ cannot factor

7. $x^2 - 2x - 48$

$(x-8)(x+6)$

-48
-8 6

8. $x^2 - 11x + 24$

$(x-3)(x-8)$

24
-3 -8

9. $x^3 + 12x^2 + 32x$

$\frac{x^3}{x} + \frac{12x^2}{x} + \frac{32x}{x}$

$x(x^2+12x+32)$

$x(x+4)(x+8)$

32
1 32
2 16
4 8

10. $2x^4 + 8x^3 + 8x^2$

$\frac{2x^4}{2x^2} + \frac{8x^3}{2x^2} + \frac{8x^2}{2x^2}$

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

$2x^2(x+2)(x+2)$