Unit 7: Factoring Quadratic Equations — Factoring II: when a = 1

Name: _____ Date: _____ Period: _____

Factoring Trinomials

$ax^2 + bx + c$ (a = 1)

1. Simplify the expression. (GCMF)
2. Draw sum and product "X"
3. Put the b at the top and a * c at the bottom.
4. Find two factors that add to the top number and multiply to the bottom number.

1. $x^2 + 7x + 6$

6: 1·6, 2·3

7: 1 + 6

$(x+1)(x+6)$

a) What are the factors of 6? 1 and 6

b) Add each pair of factors together. Which factors have a sum of 7? 1 + 6 = 7

$(x+1)(x+6)$

$x^2 + 6x + 1x + 6$

$x^2 + 7x + 6$ ✓

2. $a^2 + 9a + 14$

14: 1·14, 2·7

9: 2 + 7

$(x+2)(x+7)$

$(a+2)(a+7)$

3. $m^2 - 9m + 20$

20: 1·20, 2·10, −4·−5

−9: −4 + −5

$(x-5)(x-4)$

4. $p^2 - 1p - 30$

30: 1·30, 2·15, 3·10, 5·6

−1: −6 + 5

$(x-6)(x+5)$

5. $x^2 + 4x - 12$

12: 1·12, −2·6, 3·4

4: −2 + 6

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

6. $2x^2 + 22x - 24$

$2(x^2 + 11x - 12)$

11: −1 + 12

12: −1·12, 2·6, 3·4

$(x-1)(x+12)$

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1. $w^2 + 14w + 48$

2. $d^2 - 8d + 7$

3. $k^2 - 4k - 60$

4. $r^2 + r - 20$

5. $3x^2 + 21x + 30$

6. $3b^2 - 3b - 36$

7. $2z^2 + 14z + 24$

8. $-2s^2 - 2s + 12$

Challenge!

a. Factor: $-40x^2 + 560x - 1800$