6-5

Factoring Quadratic Expressions

Objectives: I can factor quadratic expressions in standard form.

$$x^{2}+4x+3
1+3
(x+1)(x+3)
3m^{2}+6m+3
3(m^{2}+2m+1)
1+1
3(m+1)(m+1)
3(m+1)^{2}$$

Factor each quadratic expression

$$35 - 12x + x^2$$

$$X^2 - 6X - 7$$

$$(x-5)(x-7)$$

How to Factor a Quadratic

Factoring quadratics in the form $ax^2 + bx + c$

- 1. Factor out the GCF
- 2. Multiply a and c
- 3. Find two factors of ac that add to b

 *If ac is negative, factor.s must have opposite signs

 *If ac is positive, factors must have same (+ or -) signs
- 4. Re-write equation with b split up into factors
- 5. Find the GCF by grouping
- 6. Factor the GCF of the whole

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How to Factor a Quadratic

1. Factor out the GCF

2. Multiply a and c
3. Find two factors of ac that add to b

4. Re-write equation with b split up into factors 4. x^2 + 5x + 4

5. Find the GCF by grouping
6. Factor the GCF of the whole

Example:

x^2 + 5x + 4

1. GCF = 1

2. 1 \cdot 4 = 4

3. 1, 4 or 2, 2

1 + 4 = 5

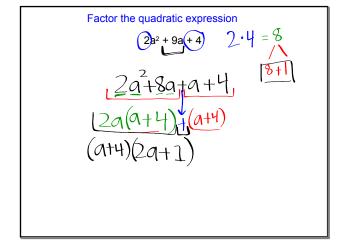
x^2 + 5x + 4

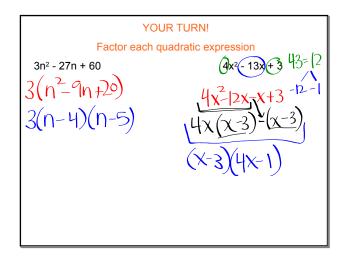
5. x(x + 1) + 4(x + 1)

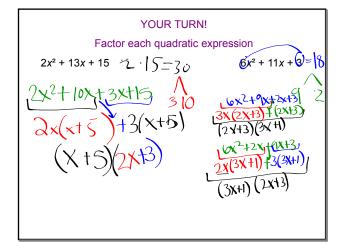
6. (x + 1)(x + 4)
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Factor each quadratic expression

4x^2 + 2x - 3 \quad 4 - 5 = -20
2p^2 - 2p - 20
NonFactorable
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Check: Can I factor quadratic expressions in standard form?

Check: Factor 10x2 + 7x +1

