Factoring the GCF and Quadratic

Objective: *I CAN* . . . factor the trinomial by factoring out the great common factor and then factoring the quadratic.

Factor the following quadratic expressions.

1.
$$4x^2-16x-84$$
 | -21 | 3-7 | $4(x^2-4x-21)$ | $4(x-7)(x+3)$

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

 $3(x^2 + 7x + 10)$
 $3(x+5)(x+2)$

5.
$$4x^2 + 12x - 72$$

$$4(x^2 + 3x - 14)$$

$$4(x + 6)(x - 3)$$

7.
$$x^{3}-14x^{2}+49x$$

 $\chi (\chi^{2}-14\chi+49)$
 $\chi (\chi -7)(\chi -7)$
 $\chi (\chi -7)^{2}$

2.
$$5x^2 + 55x + 50$$

 $5(x^2 + 11x + 10)$
 $5(x + 10)(x + 1)$

4.
$$8x^2 + 24x - 80$$

 $8(x^2 + 3x - 10)$
 $8(x+5)(x-2)$

6.
$$2x^2-10x+12$$

$$2(x^2-5x+6) - a-3$$

$$2(x-2)(x-3)$$

8.
$$6x^3 - 48x^2 - 54x$$

 $6x(x^2 - 8x - 9)$
 $6x(x - 9)(x + 1)$

Factoring Trinomials with Leading Coefficient Greater than 1

Objective: I CAN... factor quadratic trinomials of the form $ax^2 + bx - c$

* 1st ALWAYS LOOK TO FACTOR OUT GREATEST COMMON FACTOR *

1.
$$2x^2-5x-3$$
 A.L=-6
 $2 \times \frac{2}{2} \times \frac{-3}{1} \times \frac{-3}{1} \times \frac{1}{1} \times \frac{-3}{1} \times \frac{1}{1} \times \frac{-3}{1} \times \frac{1}{1} \times \frac{1$

4.
$$7x^{2}-9x+2$$
 $7x^{2}-2$
 $7x^{2}-2$
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 $7x^{2}-2$

6.
$$16x^2 - 20x - 62$$

 $2(8x^2 - 10x - 31)$ A. $C = 248$
 $8x^2$ Not factorable

Factoring Special Products

Objective: I CAN . . . factor special products.

* 1st ALWAYS LOOK TO FACTOR OUT GREATEST COMMON FACTOR *

1.
$$m^2-4$$
 $(m-2)(m+2)$

2.
$$49x^2 - 81$$
 $(7x - 9)(7x + 9)$

3.
$$25x^2 - 16$$
 $(5x - 4)(5x + 4)$

4.
$$16-x^2 = (4-x)(4+x)$$

5.
$$y^2-1$$
 $(y-1)(y+1)$

$$\frac{100r^2-9}{(10r-3)(10r+3)}$$

7.
$$27x^2-12$$

 $3(9x^2-4)$
 $3(3x-2)(3x+2)$

8.
$$50-98x^2$$

 $a(a5-46x^2)$
 $a(5-7x)(5+7x)$

9.
$$36-x^2$$
 $(6-x)(6+x)$