

5.5 Factoring Polynomials

1st Step always is to factor a GCF (greatest common factor) if possible: (factor numbers and variable)

$$12x + 20 = 4(3x + 5)$$

$$a^3 + 6a^2 - 11a = a(a^2 + 6a - 11)$$

$$-a^3 + 6a^2 - 11a = -a(a^2 - 6a + 11)$$

$$g^4 + 12g^2 \quad g^2(g^2 + 12)$$

$$14x^3 - 2x^2 + 8x \quad 2x(7x^2 - x + 4)$$

$$4x^2 + 20x - 12 \quad 2(2x^2 + 10x - 6)$$

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

$$9n^2 - 24n$$

$$3n(3n - 8)$$

Multiplication/Division

+	-	-
-	+	-
-	-	+

Factoring by Grouping

* Use for 4 terms *

$$ab - 6a + 2b - 12$$

① Look for GCF if possible
for all 4 terms

⑥ Place parantheses around first 2 terms and last 2 terms.

$$(ab - 6a) + (2b - 12)$$

⑦ Find GCF in each parantheses

$$a(b-6) + 2(b-6)$$

$(b-6)$ appears twice

Combine the factors and
leave $(b-6)$ alone.

$$(a+2)(b-6)$$

* You are done
check it

$$xy - 5x - 10 + 2y$$

$$x^3 + 5x^2 + 3x + 15$$