

11.8 EQ: How do you FACTOR POLYNOMIALS?

Factoring by Grouping:

Step 1: Group first 2 and last 2 terms together with + in between

$$56x^3 + 49x^2 - 32x - 28$$

$$\frac{(56x^3 + 49x^2)}{7x^2} + \frac{(-32x - 28)}{-4 - 4}$$

Step 2: Factor out a GCF from each set of parentheses

$$7x^2(8x + 7) + 4(8x + 7)$$

* If 1st term neg, factor out neg

$$(8x + 7)(7x^2 - 4)$$

Step 3: If binomials in parentheses are same, combine parts outside () to get 2nd binomial

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Example 1: Factor the polynomials.

a) $28x^3 - 16x^2 + 35x - 20$

$$(4x^2 + 5)(7x - 4)$$

b) $14x^3 - 21x^2 + 6x - 9$

$$(7x^2 + 3)(2x - 3)$$

Summary: