

## Factoring by grouping 2.17.17

Go over hw

The distributive property can also be used with polynomials with 4 or more terms. It is called the grouping method or factor by grouping. It using the distributive factoring part twice as I will demonstrate for you.

Together:

Factor  $4ab+8b+3a+6$  There is no common term to factor out so we have to factor by grouping  
 $(4ab+8b)+(3a+6)$  We have grouped terms together in order to try to factor  
 $4b(a+2) + 3(a+2)$  We have have factored each set of parenthesis separately  
 $(a+2)(4b+3)$  Each term had a  $(a+2)$  in it, so we factored that out of all terms.

Answer  $(a+2)(4b+3)$

Together again

$$8ax-6x-12a+9$$

$$(8ax-6x)+(-12a+9)$$

$2x(4a-3)+3(-4a+3)$  so what if we pull a negative 3 out instead of a positive 3

$$2x(4a-3)+-3(4a-3)$$

$$(2x-3)(4a-3)$$

Together again:

$$35x-5xy+3y-21$$

$$(35x-5xy)+(3y-21)$$

$5x(7-y)+3(y-7)$  So if we pull out a negative five from the first parenthesis we can use the commutative property to solve the way we want. .

$$-5x(-7+y)+3(y-7)$$

$$-5x(y+7)+3(y-7)$$

$$(y+7)(-5x+3)$$

You try:

$$4x^2 + 14x + 6x + 21$$

Work on factor by grouping worksheet