Math 1 **7.5 Greatest Common Factor** Unit 7

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| **Factor** |  |
| **GCF** |  |
| **Prime** |  |

Factoring is like \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or using the distributive property backwards.

To find the GCF or ( ), we have to:

1. See what they ALL have in common (including numbers and variables)
2. Remove what is in common
3. Show what is left
4. Check by redistributing what you removed!

**Directions:** Find the GCF in each of the following.

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 

Math 1 **7.6 Factor By Grouping** Unit 7

**Factor by Grouping:** A way of factoring a polynomial with \_\_\_\_\_\_\_ terms! We use the Backwards Box Method!

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| **The Backwards Box Method****Step 1:** Factor out a GCF if one exists**Step 2:** Put each term into the “box”**Step 3:** Factor out the greatest common factor and put it on top (or on the side) of each box**Step 4:** Check your factors by multiplying them together and getting a solution within each box**Step 5:** Write your new factors as binomials! |

**Example 1:** Factor 12x3 + 3x2 + 20x + 5

**Example 2:** Factor 45*w*4 – 36*w*3 + 15*w*2 – 12*w*

**Example 3:** Factor 6*g*3 + 18*g*2 + 60*g +* 180

**Got it?** Factor each of the following by grouping.

1. 21x3 – 28x2 – 6x + 8
2. 8t3 + 36t2 + 2t + 9
3. 6x3 + 9x2 + 2x + 3
4. 21x3 + 6x2 – 28x – 8
5. 32m3 + 72m2 – 80m – 180
6. 30b4 – 45b3 – 10b2 + 15b
7. 60a5 – 72a4 – 210a3 + 252a2
8. 12e4 + 18e3 + 36e2 + 54e