

# finding GCF & factoring 1/22

GCF: Greatest Common factor

The numbers being multiplied together

ex) find the GCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

GCF: 6

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## How to find GCF using the "Step" Method

18 and 30

$$\begin{array}{r} 6 \overline{) 18 \quad 30} \\ \underline{3 \quad 5} \end{array}$$

GCF: 6

$$\begin{array}{r} 2 \overline{) 18 \quad 30} \\ 3 \overline{) 9 \quad 15} \\ \underline{3 \quad 5} \end{array}$$

$2 \times 3 = 6$

- ① See what you can divide both #'s by
- ② Repeat Step 1 until you can only divide by 1.
- ③ Multiply the outside #'s together.

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Practice

① 36 and 24

$$\begin{array}{r}
 6 \mid 36, 24 \\
 2 \mid 6, 4 \\
 3 \mid 2 \\
 \hline
 6 \times 2 = 12 \text{ GCF}
 \end{array}$$

$$12 \mid 36, 24 \\
 \hline
 3, 2$$

$$\begin{array}{r}
 2 \mid 36, 24 \\
 2 \mid 18, 12 \\
 3 \mid 9, 6 \\
 3 \mid 3, 2
 \end{array}$$

$$2 \times 2 = 4 \times 3 = 12$$

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② 42 and 14

$$\begin{array}{r}
 2 \mid 42, 14 \\
 7 \mid 21, 7 \\
 3 \mid 1
 \end{array}$$

$$\boxed{\text{GCF: } 14}$$

③ 42x and 14xy

$$\text{GCF: } 14x$$

$$\begin{array}{r}
 42xy + 14xy \\
 14xy
 \end{array}
 \qquad
 \begin{array}{r}
 42x + 14y \\
 14
 \end{array}$$

Ask: Are any of the Variables the Same?  
(Common)

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# Factoring - Reverse distributive Property

## Steps

- ① find GCF
- ② Multiply GCF by the "left overs"
- ③ Answer will look like the Distributive property  
ex)  $7(4x+3)$

Ex)  $36x + 24$

$$\begin{array}{r} 12 \overline{) 36x + 24} \\ \underline{3x + 2} \end{array}$$

$$12(3x + 2)$$

$$36x + 24$$

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## Practice

①  $14x - 16y$

$$\begin{array}{r} 2 \overline{) 14x - 16y} \\ \underline{7x - 8y} \end{array} \quad 2(7x - 8y)$$

②  $15x + 18$

$$\begin{array}{r} 3 \overline{) 15x + 18} \\ \underline{5x + 6} \end{array}$$

$$3(5x + 6)$$

③  $4x + 9$  ← NO GCF

Cannot be Factored

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