ex. Expand & Simplify

① $(3w+7)(2w-5)$

$= 6w^2 - 15w + 14w - 35$

$= 6w^2 - w - 35$

② $(x^2-3x+1)(2x-5)$

$= 2x^3 - 5x^2 - 6x^2 + 15x + 2x - 5$

$= 2x^3 - 11x^2 + 17x - 5$

③ $3(5w+4)^2$

$3(25w^2 + 40w + 16)$

$= 75w^2 + 120w + 48$

④ $6w - 3(4w-9)$

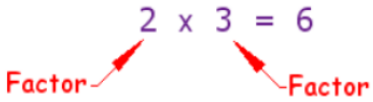
$6w - 12w + 27$

$= -6w + 27$

Finding Factors

What is a "Factor" ?

Factors are the numbers you multiply together to get another number:



Sometimes we need to find all of the factors of a number:

Find all the factors of 12:
the factors of 12 are 1, 2, 3, 4, 6, 12

Because: 1 x 12 = 12
2 x 6 = 12
3 x 4 = 12

GREATEST COMMON FACTOR

- What is considered a common factor between two whole numbers?

⇒ Largest Number that divides evenly into both

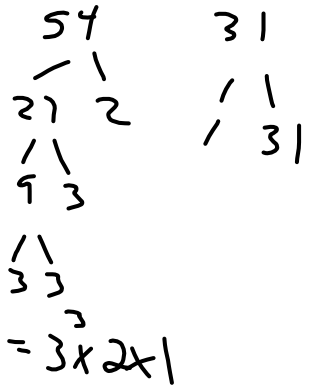
- What is the GREATEST COMMON FACTOR???....(GCF)

Determine the greatest common factor for the following groups of numbers...

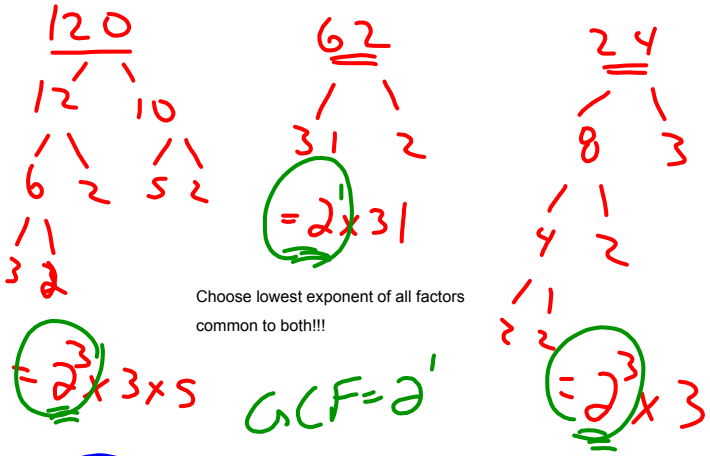
(1) 12 and 20

GCF = 4

(2) 54 and 31



(3) 120, 62 and 24



Choose lowest exponent of all factors common to both!!!

GCF = 2^1

ex.

$2^7\times 3^4\times 7^1$ & $2^5\times 3^3\times 7^2\times 5$

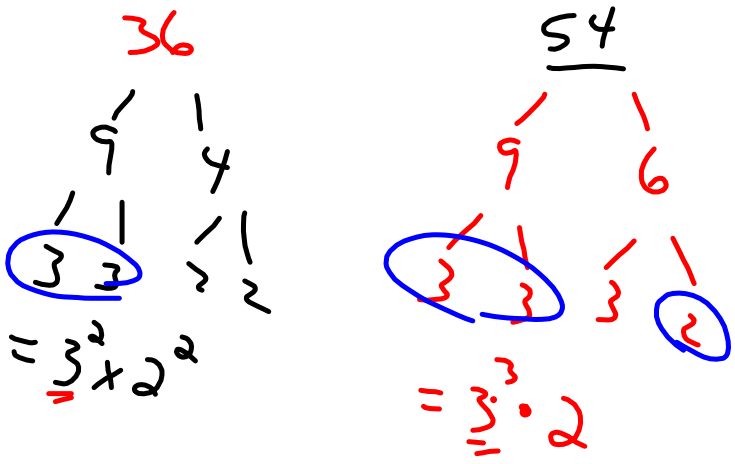
GCF = $2^5\times 3^3\times 7$

- Will demonstrate 3 strategies... Determine GCF for 36 & 54:

1) Factors

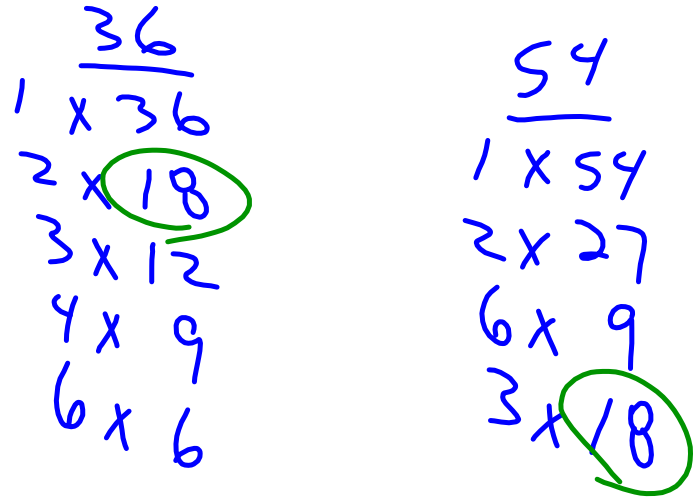
2) Factor Tree

3) Prime Factorization



GCF $= 3^2 \times 2$

$= 18$



482

2 241

$= 2 \times 241$

260

26 10

13 2 5 2

$= 2^2 \times 5 \times 13$

Find GCF

ex. 2) 1200

120 10

12 10 2 5

4 3 2 5

2 2

$= 2^4 \times 3 \times 5^2$

3240

324 10

2 162 2 5

2 81

9 9

3 3 3 3

$= 2^3 \times 3^4 \times 5$

GCF:

$= 2^3 \times 3 \times 5$

120

PRACTICE PROBLEMS...

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