Finding the Greatest Common Factor

Method 1 - for small numbers: List the common factors

ex) Find the GCF of 18 and 24

Factors of:

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

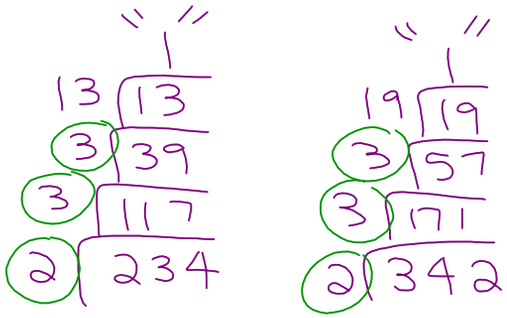
24: 2, 12, (6), 4, 3, 8, 24, 1

GCF = 6

Method 2: Use PF

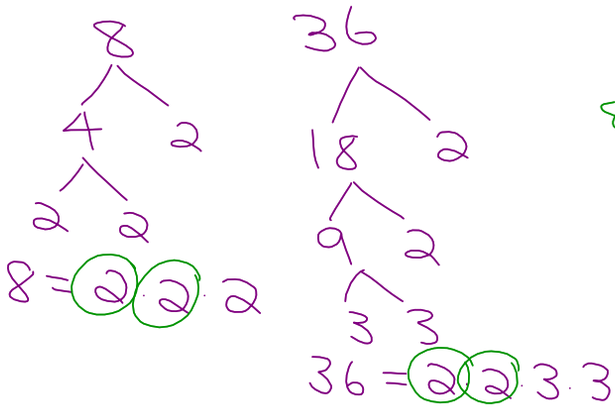
Step 1: PF each number
Step 2: pick the prime factors common to each number
Step 3: multiply these to get the GCF of both numbers

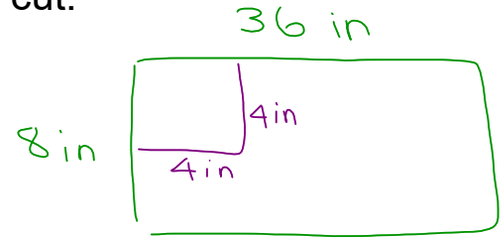
ex) Find the GCF of 234 and 342



GCF = 2 · 3 · 3
= 18

ex) What is the side length of the largest square that could be used to tile a rectangle that measures 8 in. by 36 in.? Assume that the squares cannot be cut.





GCF = 2 · 2
= 4 in

Finding the Lowest Common Multiple

LCM = lowest common multiple between 2 numbers

Method 1 - start listing multiples of each - very slow

ex) Find the LCM of 4, 5

4 → 4, 8, 12, 16, (20), 24, ...

5 → 5, 10, 15, (20), 25, ...

LCM = 20

Method 2 - Use PF

ex) Find the LCM of 28, 42, 63

Step 1: PF each number
Step 2: pick the largest power of each prime number
Step 3: multiply these to get the LCM

28 → 7, 4 → 2, 2 → $28 = 2^2 \cdot 7^1$

42 → 21, 2 → 3, 7 → $42 = 2^1 \cdot 3^1 \cdot 7^1$

63 → 9, 7 → 3, 3 → $63 = 3^2 \cdot 7^1$

$LCM = 7^1 \cdot 2^2 \cdot 3^2 = 252$

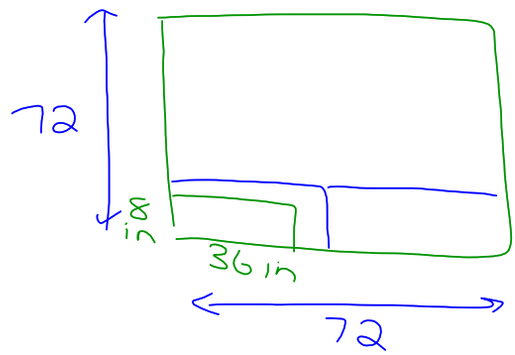
ex) What is the side length of the smallest square that could be tiled with rectangles that measure 8 in. by 36 in.? Assume the rectangles cannot be cut.

$8 = 2^3$

$36 = 2^2 \cdot 3^2$

$LCM = 2^3 \cdot 3^2$

$= 72$ in



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