Using Prime Factorization to Find GCF & LCM

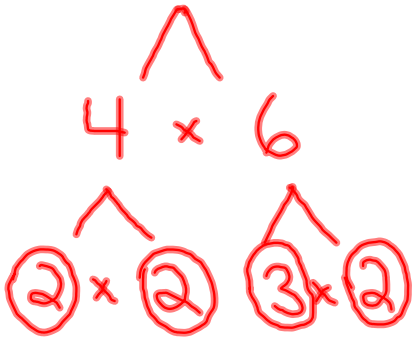
Prime Factorization - the factorization of a composite number into prime factors

You can use a factor tree to find the prime factorization of any composite number.

Let's Review

Use prime factorization to find the prime factors of each number. Write your answers in expanded form.

24



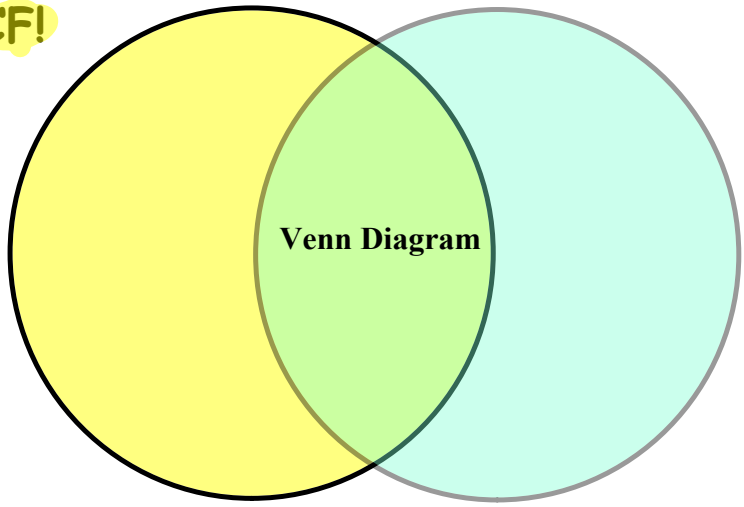
2x2x2x3

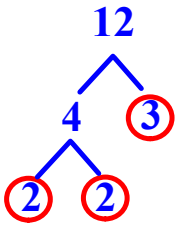
60

2x2x3x5

Great news!

You can use Prime Factorization to find LCM and GCF!

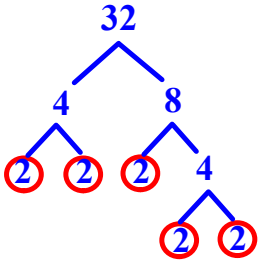


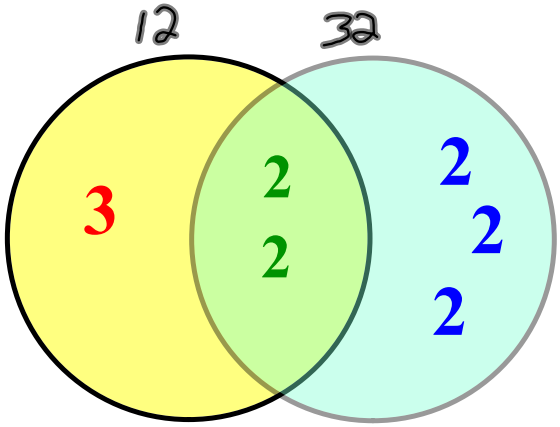


Complete the prime factorization of 12 and 32

$12 = 2 \times 2 \times 3$

$32 = 2 \times 2 \times 2 \times 2 \times 2$





To find LCM multiply the factors in all three sections of the Venn Diagram

$3 \times 2 \times 2 \times 2 \times 2 \times 2 = 96$ The LCM of 12 and 32 is 96

To find GCF multiply the factors in the center of the Venn Diagram

$2 \times 2 = 4$ The GCF of 12 and 32 is 4

Let's Try Some!

Use prime factorization to find LCM and GCF of 15 and 6

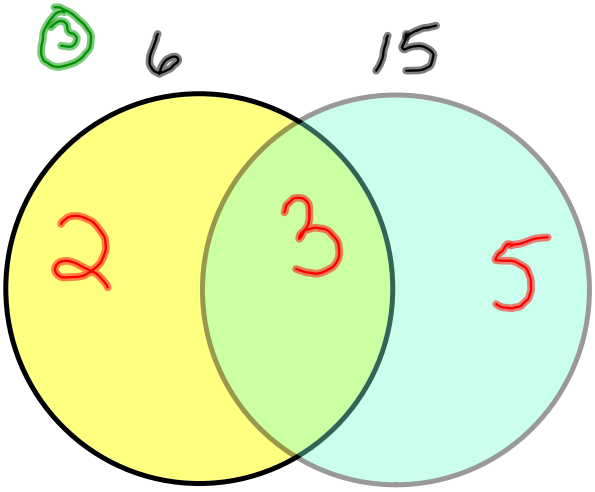
① 6 15

2 × 3 3 × 5

② 6 : 2 × 3

15 : 3 × 5

③



④ LCM = 30

GCF = 3

Use prime factorization to find LCM and GCF of 12 and 30

12

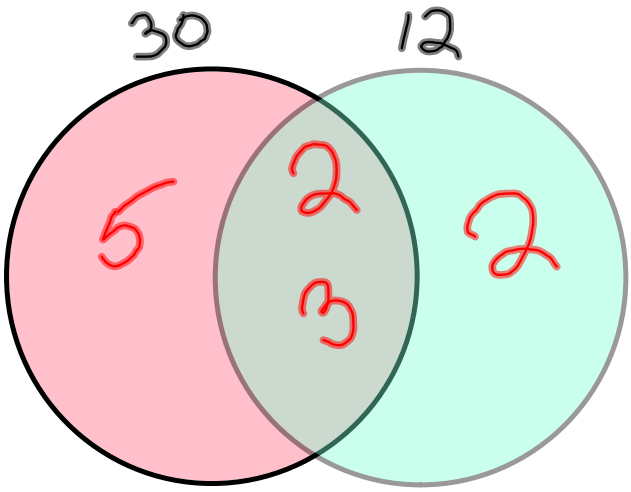
3 × 4

2 × 2

30

5 × 6

2 × 3



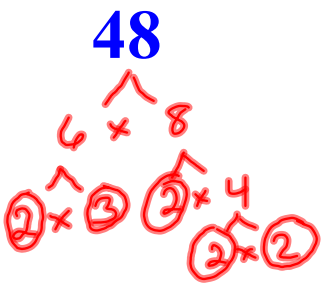
12: 2 × 2 × 3

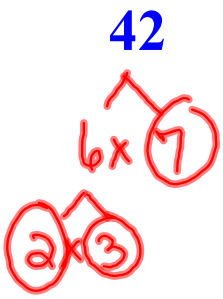
30: 2 × 3 × 5

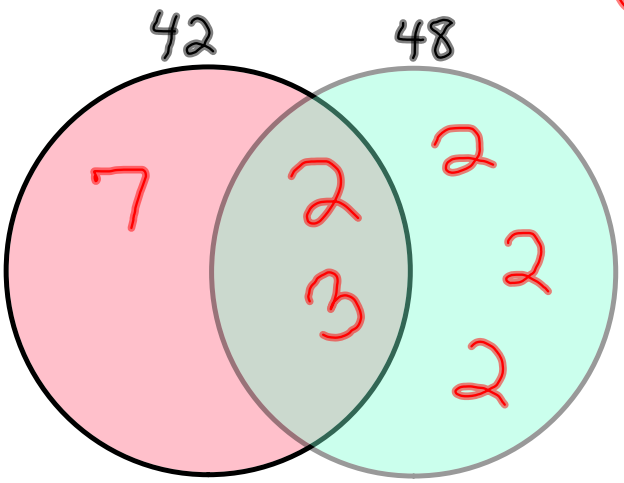
GCF = 6

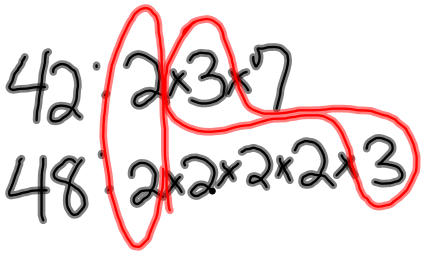
LCM = 60

Use prime factorization to find GCF of 48 and 42









GCF = 6

Use prime factorization to find LCM 8 and 20

8

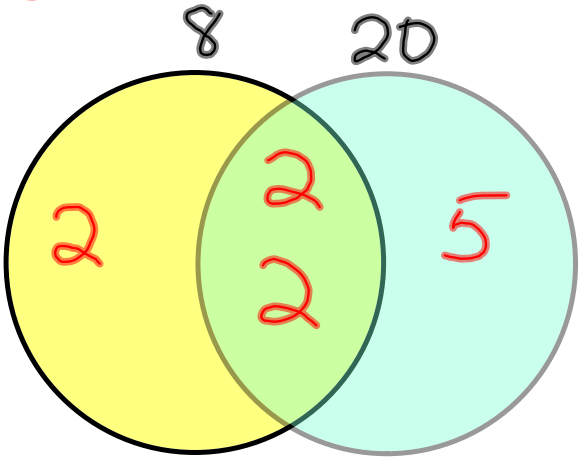
4×2

2×2

20

4×5

2×2

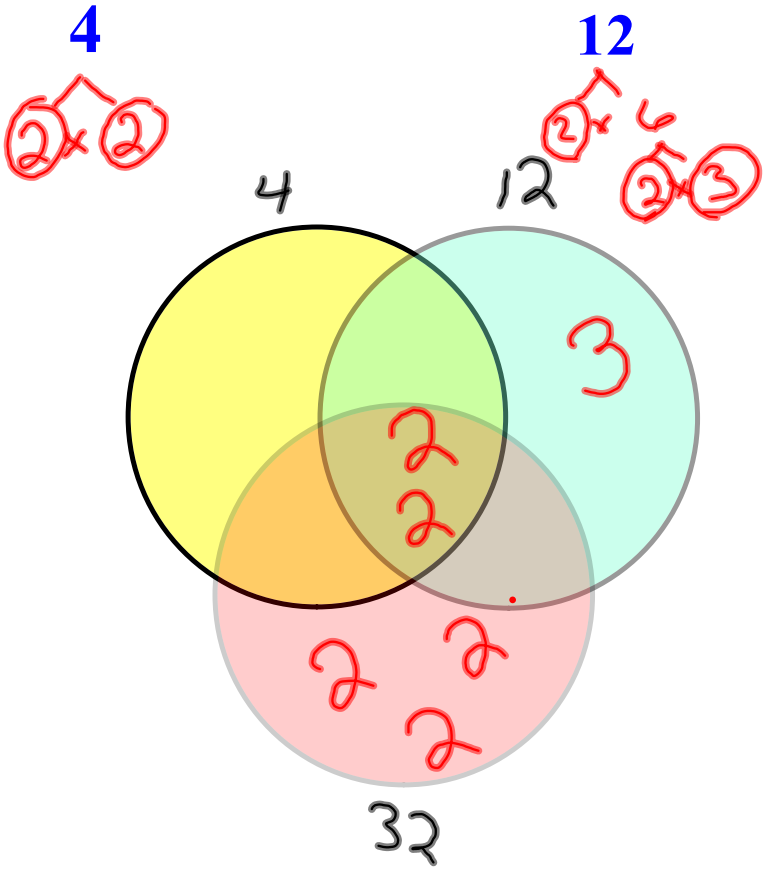


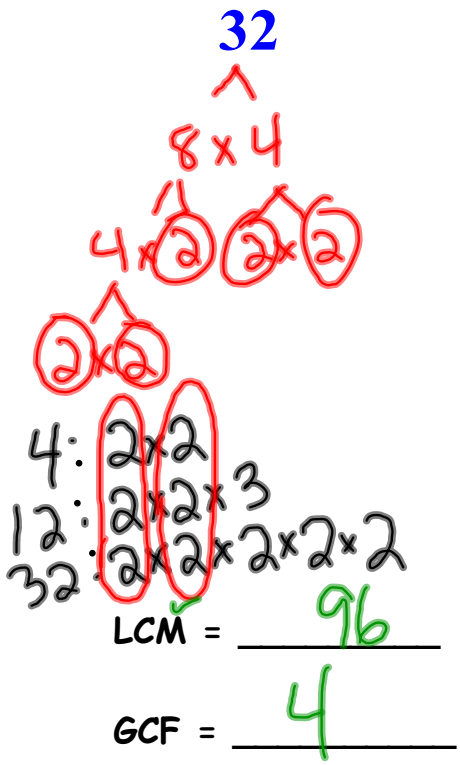
8: 2×2×2

20: 2×2×5

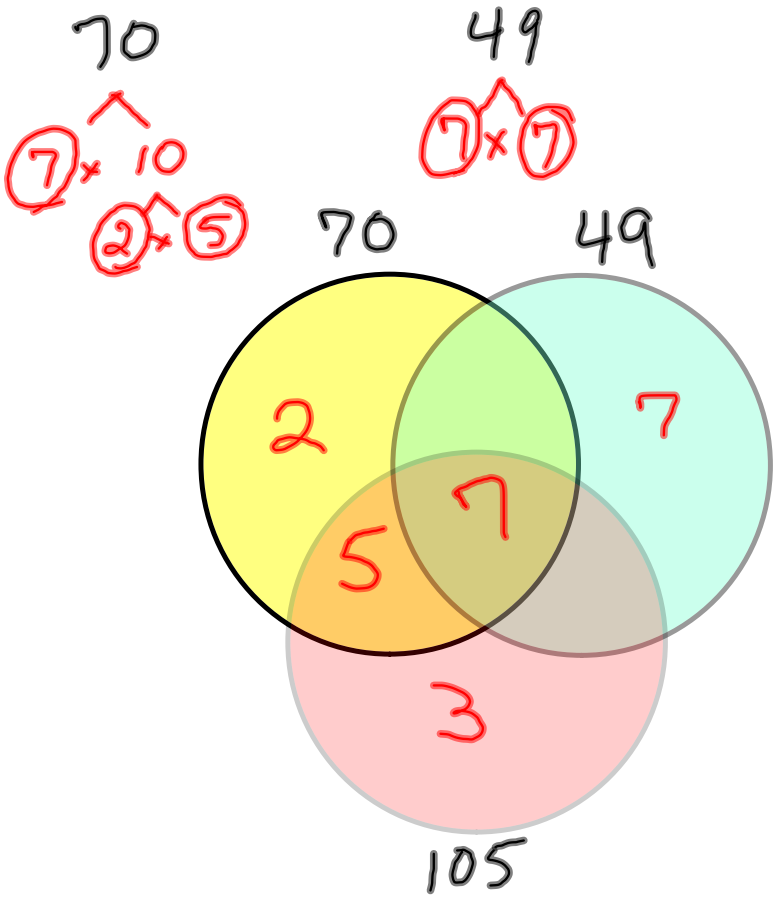
LCM = 40

Use prime factorization to find GCF and LCM of 4, 12 and 32





Use prime factorization to find GCF 70, 49, and 105



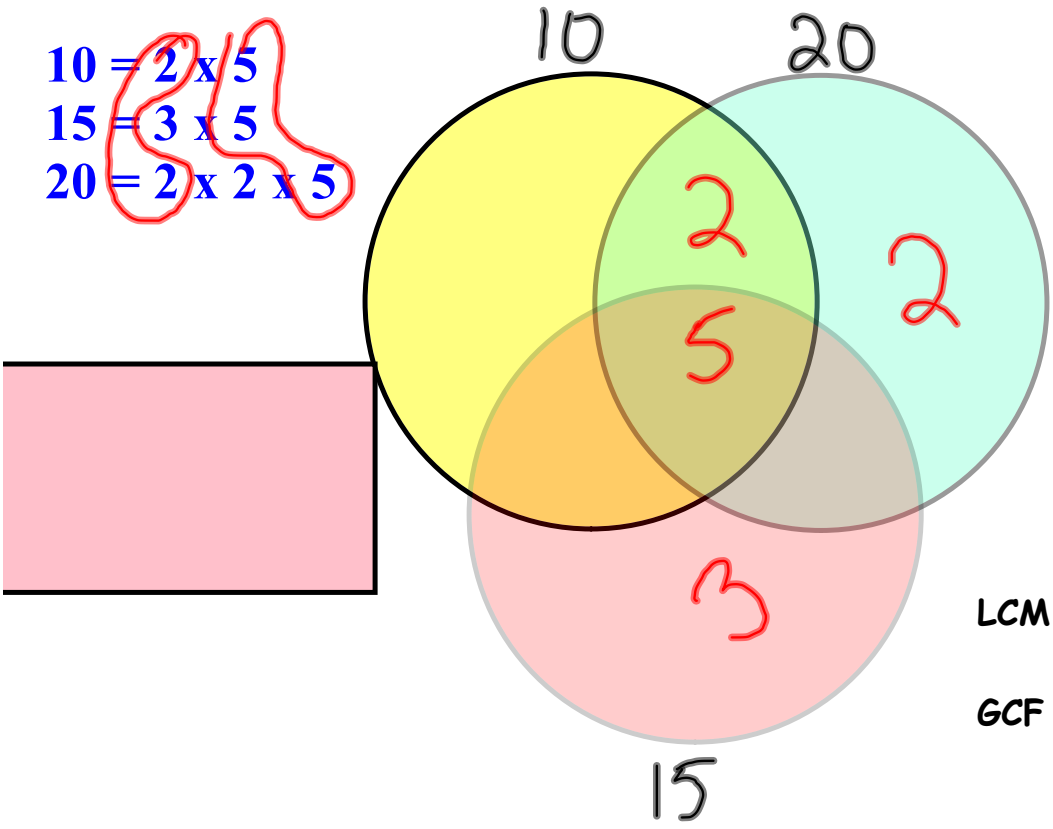
70: 2 × 5 × 7
49: 7 × 7
105: 3 × 5 × 7

GCF = 7

LCM = 1470

Use prime factorization to find LCM & GCF of 10, 20, and 15

$10 = 2 \times 5$
$15 = 3 \times 5$
$20 = 2 \times 2 \times 5$



LCM = 60

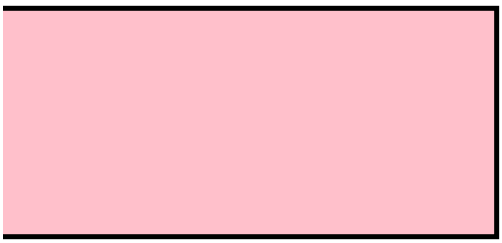
GCF = 5

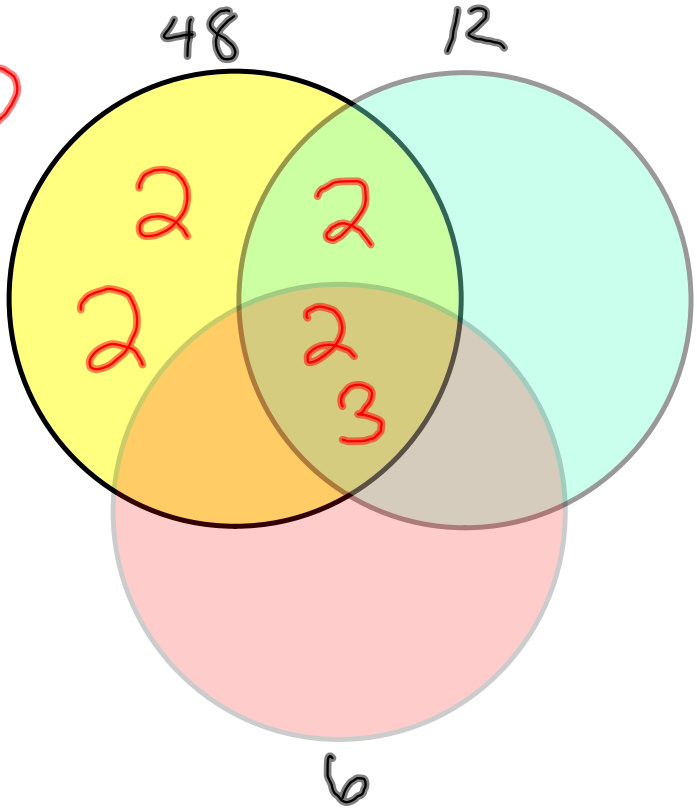
Use prime factorization to find LCM & GCF of 48, 12, and 6

$48 = 2 \times 2 \times 2 \times 2 \times 3$

$12 = 2 \times 2 \times 3$

$6 = 2 \times 3$





GCF = 6

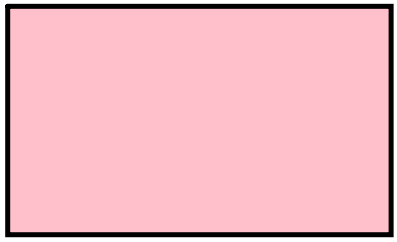
LCM = 48

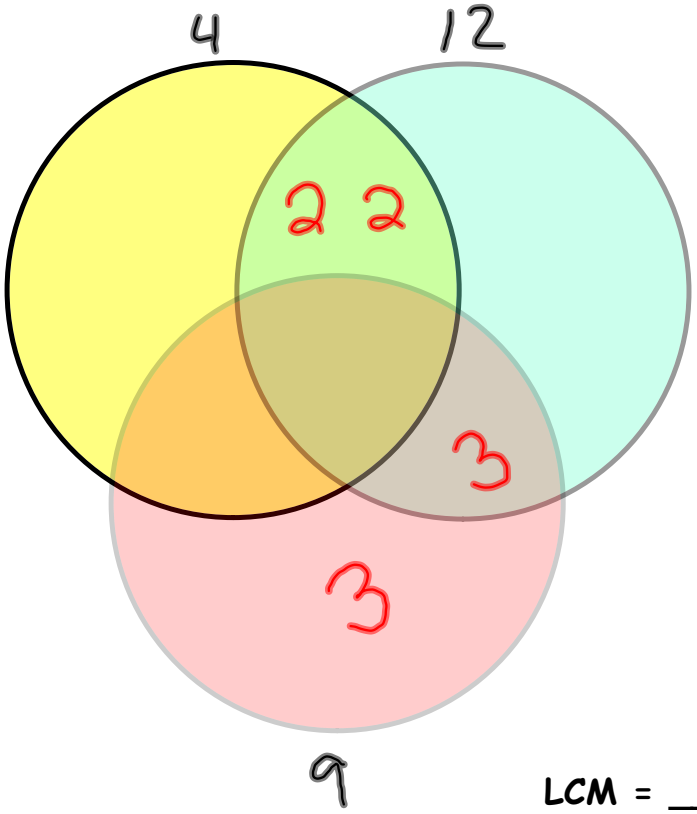
Use prime factorization to find LCM & GCF of 4, 9, and 12

$4 = 2 \times 2$

$12 = 2 \times 2 \times 3$

$9 = 3 \times 3$





LCM = 36

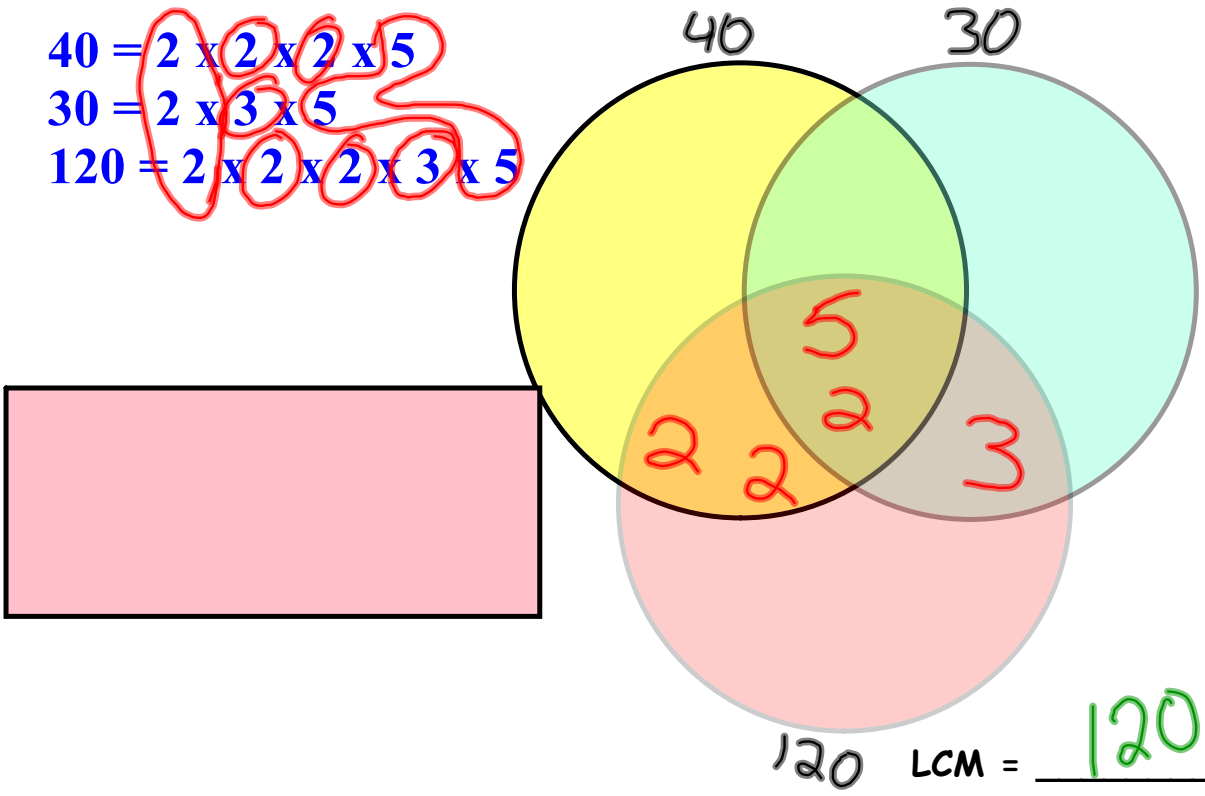
GCF = 1

Use prime factorization to find LCM & GCF of 40, 30, and 120

$40 = 2 \times 2 \times 2 \times 5$

$30 = 2 \times 3 \times 5$

$120 = 2 \times 2 \times 2 \times 3 \times 5$



LCM = 120

GCF = 10