FINDING GCFs and LCMs Using the Venn Diagram

Example 1: Find the GCF and LCM for 50 and 60.
1) Use any method to factor each number. (Examples: Factor trees, or stair steps or ...).
2) Then, write the prime factorization for each number.

     Factor 50:   2 X 5 X 5

   Factor 60:   2 X 3 x 2 X 5 = 2 X 2 X 3 X 5

3) Start with the factors of 50.
     The first factor is 2.
     Since 2 also is a factor of 60, you put that in the "football shape", the intersection
     of the two circles.
4) Then, cross it off each expanded problem. (2 is a common factor.)
5) Do the same thing for the rest of the factors until they have no other factors in common.
     (5 is also a common factor.)
6) The factors that are "left over" belong in the part of the circle that is not overlapping.
7) Circle A has all the factors of 50. Circle B has all the factors of 60. The overlapping
     part contains the factors that are in common with both numbers.

     Factor 50:   2 X 5 X 5
     Factor 60:   2 X 3 x 2 X 5 = 2 X 2 X 3 X 5

Circle A: Factors of 50   Circle B: Factors of 60

5   2   2
     5   3
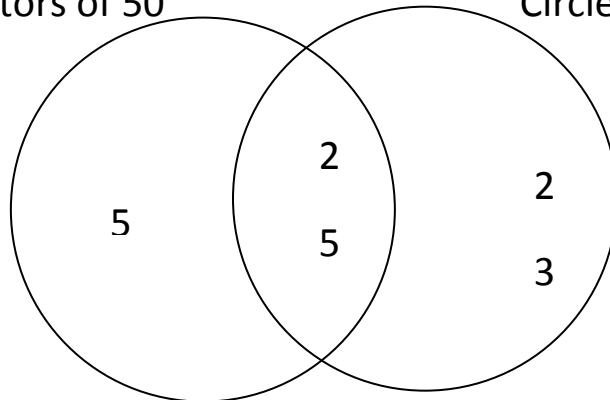
GCF for 50 and 60 = 2 X 5 = 10

Then for LCM, multiply all the numbers together that are in the Venn Diagram:
LCM for 50 and 60: 5 X 2 X 5 X 2 X 3= 300

Example 2: Find the GCF and LCM of 24 and 36:

Use trees or any method to factor each number. Write the prime factorization.

Factor 24: 2 X 2 X 2 X 3   Factor 36: 2 X 2 X 3 X 3

Cross out the common factors and put them in the "intersection" of the Venn Diagram

Factor 24: 2 X 2 X 2 X 3   Factor 36: 2 X 2 X 3 X 3

Circle A: Factors of 24   Circle B: Factors of 36

2

2
2
3

3
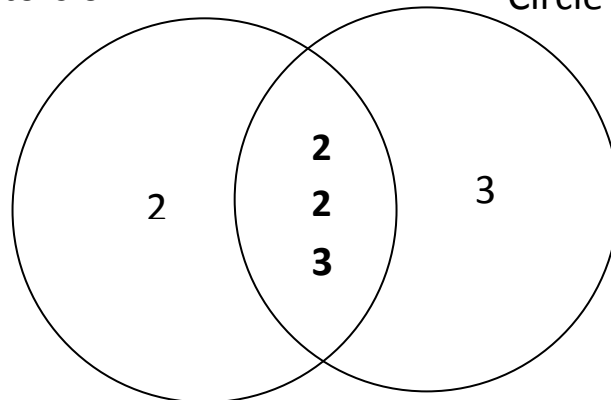
GCF: 2 X 2 X 3 = 12
LCM: 2 X 2 X 2 X 3 X 3 = 72

Example 3:   Find the GCF and LCM of 15 and 22.

Factor 15: 3 X 5
Factor 22: 2 X 11

3
5

2
11
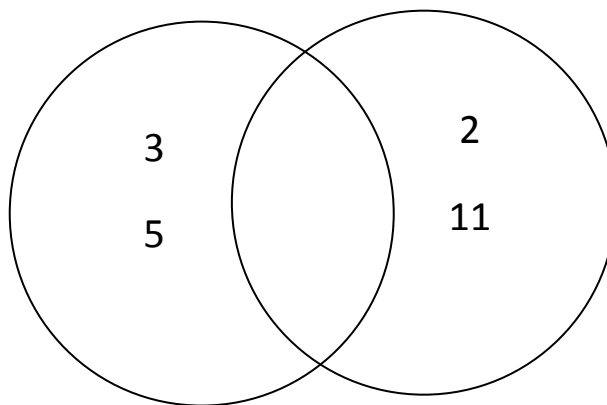
What is a factor of every number? 1!!! Since these two numbers don't have any other factors in common, the GCF is 1.

LCM: 3 X 5 X 2 X 11 = 330