1.6 LEAST COMMON MULTIPLE

Essential Question: How can you find the least common multiple of 2 numbers?

What are the first 6 multiples of the following numbers?

1) 5 5, 10, 15, 20, 20, 25

2) 8 8, 16, 24, 32, 40, 48

Least Common Multiple (LCM)->The Smallest multiple that is shared by 2 or more numbers.

One way you can find the LCM of two or more numbers is by listing multiples.

EXAMPLE 1

Find the least common multiple.

1) 4 and 6

Multiples of 4 → 4, 8, (12)

Multiples of 6 → 6, (12)

LCM = 12

2) 3 and 8

Multiples of 3 → 3, 6, 9, 12, 15, 18, 21, (24)

Multiples of 8 → 8, 16, (24)

LCM = 24

3) 9 and 12

Multiples of 9 → 9, 18, 27, (36)

Multiples of 12 → 12, 24, (36)

LCM = 36

4) 6 and 10

Multiples of 6 → 6, 12, 18, 24, 30, 36, 42, 48, 54, (60)

Multiples of 10 → 10, 20, 30, 40, 50, (60)

LCM = 60

Another way you can find the LCM of two or more numbers is by prime factorization

EXAMPLE 2

Find the LCM by using prime factorization.

1) 16 and 20

16 → 4 · 4 → 2 · 2 · 2 · 2

20 → 4 · 5 → 2 · 2 · 5

16 → 2 · 2 · 2 · 2

20 → 2 · 2 · 5

LCM = 2 · 2 · 2 · 2 · 5

LCM = 80

2) 14 and 18

14 → 2 · 7

18 → 2 · 9 → 2 · 3 · 3

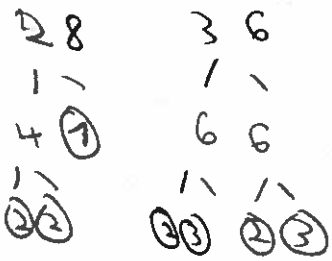
14 → 2 · 7

18 → 2 · 3 · 3

LCM = 2 · 3 · 3 · 7

LCM = 126

3) 28 and 36



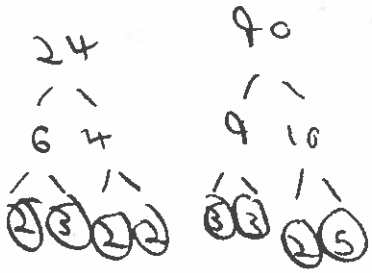
28 → 2 · 2 · 7

36 → 2 · 2 · 3 · 3

LCM = 2 · 2 · 3 · 3 · 7

LCM = 252

4) 24 and 90



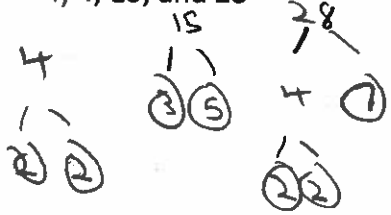
24 → 2 · 2 · 2 · 3

90 → 2 · 3 · 3 · 5

LCM = 2 · 2 · 2 · 3 · 3 · 5

LCM = 360

4) 4, 15, and 28



4 → 2 · 2

15 → 3 · 5

28 → 2 · 2 · 7

LCM = 2 · 2 · 3 · 5 · 7

LCM = 420

5) 2, 5, and 8.

2 → 2

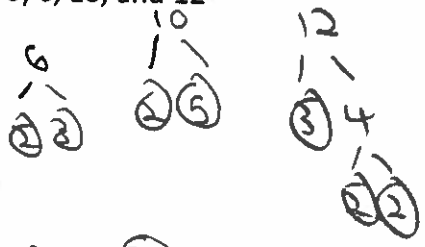
5 → 5

8 → 2 · 2 · 2

LCM = 2 · 2 · 2 · 5

LCM = 40

6) 6, 10, and 12



6 → 2 · 3

10 → 2 · 5

12 → 2 · 2 · 3

LCM = 2 · 2 · 3 · 5

LCM = 60

HOW TO FIND THE LEAST COMMON MULTIPLE USING PRIME FACTORIZATION.

1) Find the prime factorization of each number.

2) Circle each different factor where it appears the most.

3)Multiply all the factors that you circled to find the Least Common Multiple

EXAMPLE 3

A traffic light changes every 30 seconds. Another traffic light changes every 40 seconds. Both lights just changed. After how many minutes will both lights change at the same time again?

Multiples of 30 → 30 60 90 (120)

multiples of 40 → 40 80 (120)

Both lights will change again after 2 minutes.