

5.1 LCM- Least Common Multiple

p. 228 1-11-18

The smallest number that is a multiple of two or more numbers is the **least common multiple (LCM)**. In Additional Example 1, the LCM of 8 and 12 is 24.

8, 16, 24, 32
12, 24, 36, 48

Dec 11-1:34 PM

Dec 11-1:35 PM

This is another method used to find the LCM of 2 or 3 numbers.

To find the LCM of 2 numbers:

Example

Find the LCM of 8 and 12.

2·2·2·3 

LCM = 24

Step 1:

8	12
---	----

Find a number that has a common divisor (goes into both numbers evenly).

Step 2:

2	8	12
2	4	6
2	2	3

Step 3: Draw a "bubble L" around the outside numbers.

Since there is no number that divides into 2 and 3 evenly, we are finished.

Find the LCM of 8 and 12 by multiplying all the numbers inside the bubble.

Step 4: $2 \times 2 \times 2 \times 3 = 24$ LCM = 24

2 and 3

1	2	3
2	3	

 $1 \cdot 2 \cdot 3 = 6$
LCM = 6

Dec 11-1:38 PM

Dec 11-1:42 PM

6 and 20

2	6	20
3	10	

 $2 \cdot 3 \cdot 10 = 60$
LCM = 60

4 and 10

2	4	10
2	5	

 $2 \cdot 2 \cdot 5 = 20$
LCM = 20

Dec 11-1:42 PM

Dec 11-1:42 PM

To find the LCM of 3 numbers:
Example
 Find the LCM of 4, 6 and 20.

First find the LCM of 4 and 6.

2	4	6
	2	3

LCM of 4 and 6 is $2 \times 2 \times 3 = 12$.

Now find the LCM of 12 and 20.

2	12	20
2	6	10
3		5

Since there is no number that divides into 3 and 5, we are finished.

Find the LCM of 4, 6 and 20 by multiplying all the numbers inside the 2nd bubble.
 $2 \times 2 \times 3 \times 5 = 60$ LCM = 60

Dec 11-1:37 PM

3, 4, and 9

1	3	4
	3	4

$4 \cdot 3 \cdot 1 = 12$

3	12	9
	4	3

$3 \cdot 3 \cdot 4 = 36$
 LCM = 36

Dec 11-1:42 PM

15, 6, and 4

1	15	4
	15	4

$2 \cdot 4 / 2 \cdot 3$
 $2 \cdot 15$
 $\times 4$
 60 LCM=60

2	60	6
3	30	3
	10	1

LCM=60

3	15	6
	5	2

LCM=30

2	30	4
	15	2

Dec 11-1:42 PM

12, 6, and 8

2	12	6
3	6	3
	2	1

LCM=12

4	12	8
	3	2

LCM=24

Dec 11-1:42 PM

2, 6, 8, 12

2	2	6
	1	3

LCM=6

2	8	12
2	4	6
	2	3

LCM=24

24	6	6	24
	1	1	4

Jan 8-1:46 PM