

# Least Common Multiple

Multiples that are shared by two or more numbers are called **common multiples**. The least of the common multiples is called the **least common multiple** (LCM). There are several different ways to find the LCM of two or more numbers.

**Example 1** Find the least common multiple (LCM) of 18 and 30.

**Method 1** List the multiples of each number. Then circle the common multiples.

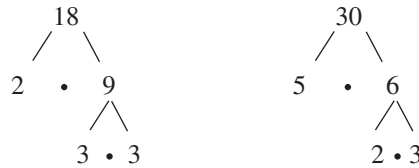
**Multiples of 18:** 18, 36, 54, 72, 90, 108, 126, 144, 162, 180

**Multiples of 30:** 30, 60, 90, 120, 150, 180, 210

Some common multiples of 18 and 30 are 90 and 180. The least of these common multiples is 90.

► So, the LCM of 18 and 30 is 90.

**Method 2** Make a factor tree for each number.



Write the prime factorization of each number. Circle each different factor where it appears the greatest number of times.

$$18 = 2 \cdot 3 \cdot 3$$

2 appears once in both factorizations, so circle it here.

3 appears more often here, so circle all 3s.

$$30 = 2 \cdot 3 \cdot 5$$

5 appears once. Do not circle the 2s or 3s again.

$$2 \cdot 3 \cdot 3 \cdot 5 = 90$$

Find the product of the circled factors.

► So, the LCM of 18 and 30 is 90.

## Practice

Check your answers at [BigIdeasMath.com](http://BigIdeasMath.com).

Find the LCM of the numbers using the two methods shown above.

- |                       |                        |                           |                           |
|-----------------------|------------------------|---------------------------|---------------------------|
| 1. 6, 10 <b>30</b>    | 2. 12, 16 <b>48</b>    | 3. 15, 25 <b>75</b>       | 4. 20, 50 <b>100</b>      |
| 5. 9, 24 <b>72</b>    | 6. 10, 22 <b>110</b>   | 7. 25, 35 <b>175</b>      | 8. 12, 14 <b>84</b>       |
| 9. 4, 6, 10 <b>60</b> | 10. 6, 9, 12 <b>36</b> | 11. 10, 18, 20 <b>180</b> | 12. 16, 24, 30 <b>240</b> |

13. **SPOTLIGHTS** A spotlight at a dance club flashes every 25 seconds. Another spotlight flashes every 30 seconds. Both lights just flashed. After how many minutes will both lights flash at the same time again? **150 sec. or 2.5 min**
14. **CLOCKS** A clock chimes every 15 minutes. Another clock chimes every half hour. Both clocks just chimed at midnight. How many times will both clocks chime at the same time over the next 24 hours? **48 times**
15. **SUBWAYS** Three subway lines arrive at a station at the same time. Line A arrives at the station every 20 minutes, Line B arrives every 24 minutes, and Line C arrives every 25 minutes. How long must you wait until all three lines arrive at the station at the same time again? **600 min, or 10 h**