NAME _____ DATE _____ PERIOD ____

5-7 Study Guide and Intervention

Least Common Multiple

A **multiple** of a number is the product of that number and any whole number. The least nonzero multiple of two or more numbers is the **least common multiple (LCM)** of the numbers.

EXAMPLE 1 **Find the LCM of 15 and 20 by listing multiples.**

List the multiples.

multiples of 15: 15, 30, 45, **60**, 75, 90, 105, **120**, ...

multiples of 20: 20, 40, **60**, 80, 100, **120**, 140, ...

Notice that 60, 120, ..., are common multiples. So, the LCM of 15 and 20 is 60.

EXAMPLE 2 **Find the LCM of 8 and 12 using prime factors.**

Method 1 Write the prime factorization.

$8 = 2 \times 2 \times 2 = 2^3$

$12 = 2 \times 2 \times 3 = 2^2 \times 3$

The prime factors of 8 and 12 are 2 and 3. Multiply the greatest power of both 2 and 3.

The LCM of 8 and 12 is $2^3 \times 3$, or 24.

Method 2 Divide by prime numbers.

$$\begin{array}{r|ll} & 2 & 3 \\ \hline 2 & 4 & 6 \\ 2 & 8 & 12 \end{array}$$ ← Start here.

Start dividing by prime factors until both numbers cannot be divided by the same divisor. Then multiply the divisors and quotients to get the LCM.

Lesson 5-7

EXERCISES

Find the LCM of each set of numbers.

1. 4, 6

2. 6, 9

3. 5, 9

4. 8, 10

5. 12, 15

6. 15, 21

7. 4, 15

8. 8, 20

9. 8, 16

10. 6, 14

11. 12, 20

12. 9, 12

13. 14, 21

14. 6, 15

15. 4, 6, 8

16. 3, 5, 6