



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

Numbers, Radicals, and Exponents

LESSON TWO - *Primes, LCM, and GCF*

Lesson Notes

Introduction

Prime Numbers, Least Common Multiple, and Greatest Common Factor.

a) What is a prime number?

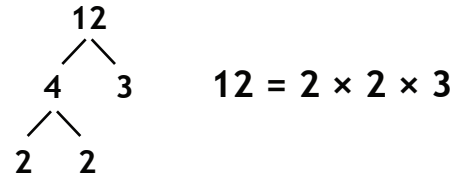
b) What is a composite number?

c) Why are 0 and 1 not considered prime numbers?

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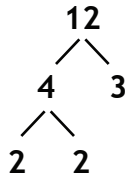
Lesson Notes



d) What is prime factorization? Find the prime factorization of 12.

e) What is the LCM? Find the LCM for 9 and 12 using two different methods.

f) What is the GCF? Find the GCF for 16 and 24 using two different methods.



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Example 1

Determine if each number is prime, composite, or neither.

a) 1

b) 14

c) 13

d) 0

Example 2

Find the least common multiple for each set of numbers.

a) 6, 8

b) 7, 14

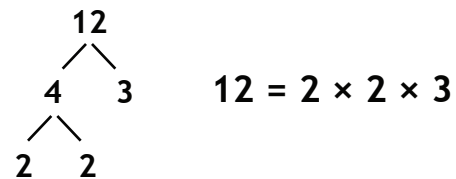
c) 48, 180

d) 8, 9, 21

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Example 3

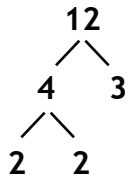
Find the greatest common factor for each set of numbers.

a) 30, 42

b) 13, 39

c) 52, 78

d) 54, 81, 135



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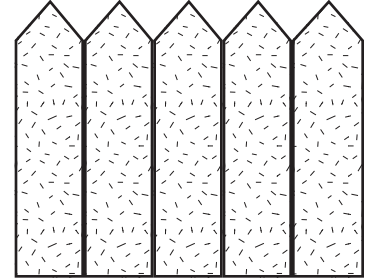
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Example 4

Problem solving with LCM



a) A fence is being constructed with posts that are 12 cm wide. A second fence is being constructed with posts that are 15 cm wide. If each fence is to be the same length, what is the shortest fence that can be constructed?

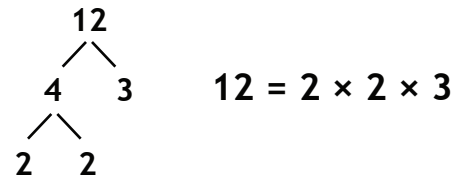
b) Stephanie can run one lap around a track in 4 minutes. Lisa can run one lap in 6 minutes. If they start running at the same time, how long will it be until they complete a lap together?

c) There is a stack of rectangular tiles, with each tile having a length of 84 cm and a width of 63 cm. If some of these tiles are arranged into a square, what is the smallest side length the square can have?

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Example 5

Problem solving with GCF

a) A fruit basket contains apples and oranges. Each basket will have the same quantity of apples, and the same quantity of oranges. If there are 10 apples and 15 oranges available, how many fruit baskets can be made? How many apples and oranges are in each basket?



b) There are 8 toonies and 20 loonies scattered on a table. If these coins are organized into groups such that each group has the same quantity of toonies and the same quantity of loonies, what is the maximum number of groups that can be made? How many loonies and toonies are in each group?

c) A box of sugar cubes has a length of 156 mm, a width of 104 mm, and a height of 39 mm. What is the edge length of one sugar cube? Assume the box is completely full and the manufacturer uses sugar cubes with the largest possible volume.

