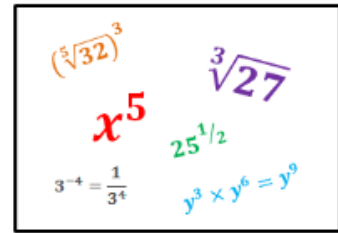


Roots and Powers

↳ Chapter 3: Section 3.1 - 3.2

↳ Chapter 4: Section 4.1 - 4.6



Sec 3.1: Factors and Multiples of Whole Numbers

Factors

↳ numbers that can be multiplied to get a product.

↳ 3 and 7 are factors of 21 because $3 \times 7 = 21$.

Prime Number

↳ a whole number that has **exactly two distinct factors: divisible by 1 and itself.**

↳ 2, 3, 5, 7, 11, ... , etc, are all prime numbers.

↳ 0 and 1 are NOT prime numbers.

$0 = 0 \times 1 \longrightarrow$ cannot divide by 0

$1 = 1 \times 1 \longrightarrow$ not unique

Composite Number

↳ a number which has three or more factors.

↳ 4, 6, 8, 9, 10, ... , etc, are all composite numbers.

Greatest Common Factor (GCF)

↳ is the greatest number (factor) that divides into each number in the set.

Example 3:

a) What is the GCF of 10 and 15?

b) What is the GCF of 24 and 12?

Note:

Prime factorization can be used to determine the GCF!

↳ The GCF is the product of common prime numbers.

Determine the GCF of 24 and 12 using prime factorization.

Least Common Multiple (LCM)

↳ is the lowest multiple that is the same for two or more numbers.

Note: Be careful not to confuse multiple with factor.

Multiples of 8

8, 16, 24, 32, 40,, etc

Factors of 8

1, 2, 4, and 8

Example 4:

a) What is the LCM of 4 and 6?

b) What is the LCM of 18, 20 and 30?

Note:

Prime factorization can also be used to determine the LCM!

↳ The LCM is the product of the greatest power of each prime factor.

Determine the LCM of 18, 20 and 30 using prime factorization.

Applications of GCF and LCM



Example 5:

Pencils come in packages of 10. Erasers come in packages of 12. Jason wants to purchase the smallest number of pencils and erasers so that he will have exactly 1 eraser per pencil. How many packages of pencils and erasers should Jason buy?

Example 6:

One trip around a track is 440 yards. One runner can complete one lap in 8 minutes, the other runner can complete it in 6 minutes. How long will it take for both runners to arrive at their starting point together if they start at the same time and maintain their pace?

Example 7:

- a) What is the side length of the smallest square that could be tiled with rectangles that measure 16 cm by 40 cm? Assume the rectangles cannot be cut. Sketch the square and rectangles.



- b) What is the side length of the largest square that could be used to tile a rectangle that measures 16 cm by 40 cm? Assume that the squares cannot be cut. Sketch the rectangle and squares.



Work Book Questions

p.140 #5a, 8a, 10c, 12

Extra Practice Questions

p.140 #3ab, 4ab, 5b, 8b,
10b, 13, and 17.