Sec. 3.1 – Factors and Multiples of Whole Numbers

Things you should remember from your past.......

Multiples

The **multiples** of a number are determined by multiplying the number by 1, 2, 3, 4, and so on, or by skip counting.
For example, the multiples of 12 are: 12, 24, 36, 48, …
Multiples that are the same for 2 numbers are **common multiples**.

- To determine the first 3 common multiples of 4 and 6:

  The multiples of 4 are: 4, 8, **12**, 16, 20, **24**, 28, 32, **36**, 40, …

  The multiples of 6 are: 6, **12**, 18, **24**, 30, **36**, …

  12, 24, and 36 appear in both lists.

  So, 12, 24, and 36 are the first 3 common multiples of 4 and 6.

Factors

A **factor** is a number that divides exactly into another number.
For example, 1, 2, 3, 4, 6, and 12 are the factors of 12.
Each number divides into 12 with no remainder.
Factors that are the same for 2 numbers are **common factors.**

A **prime number** is a number with exactly 2 factors, 1 and itself.

- To determine the factors of 40:

40 ÷ 1 = 40	1 and 40 are factors.
40 ÷ 2 = 20	2 and 20 are factors.
40 ÷ 4 = 10	4 and 10 are factors.
40 ÷ 5 = 8	5 and 8 are factors.

  The factors of 40 are: 1, 2, 4, 5, 8, 10, 20, and 40.
  Some of the factors are prime numbers.
  The factors of 40 that are prime numbers are 2 and 5.

1. List the first 6 multiples of this number. ---→ 5

2. Determine the first 3 common multiples of each pair of numbers. (2 and 5)

3. Determine the factors of each number. List the factors that are prime numbers.

15

**4.** Determine the common factors of each pair of numbers.

16 and 24

Now onto Grade 10 Math…..

1. Write the prime factorization of 2646.

2. Determine the greatest common factor of 126 and 144.

3. Determine the least common multiple of 28, 42, and 63.

4. a) What is the side length of the smallest square that could be tiled with rectangles that measure 8 in. by 36 in.? Assume the rectangles cannot be cut. Sketch the square and rectangles.
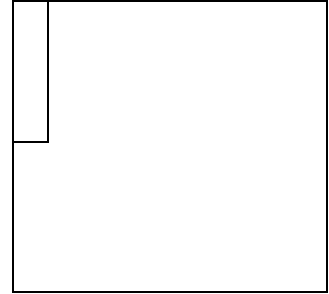
b) What is the side length of the largest square that could be used to tile a rectangle that measures 8 in. by 36 in.? Assume that the squares cannot be cut. Sketch the rectangle and squares.