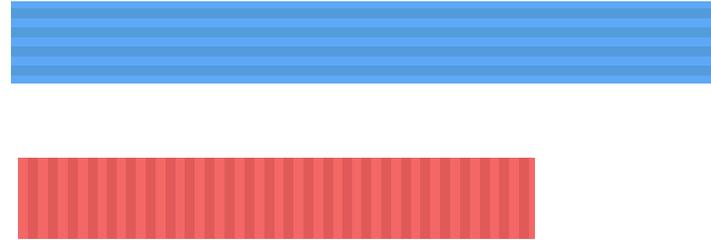INTO
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GRADE 8 - LESSON 2

PROPORTIONS

UNDERSTANDING PROPORTIONS

The blue stripe is 3 m long and the red stripe is 2 m long.
How many times is the blue stripe is longer than the red one?
To find out, divide 3 by 2 and get 1.5.
Therefore, the blue stripe is **1.5 times** longer than the red one.
The quotient of 3 by 2 is called **a ratio**.

The same stripe lengths could be represented in centimeters as 300 and 200 and 300 divided by 200 is also 1.5.
Therefore, 3 : 2 = 300 : 200

The equality of two ratios is called a proportion.

REPRESENTING PROPORTIONS

Using letters to set up a general proportion:

a, b, c and d cannot equal 0.

THE MAIN PROPERTY OF A PROPORTION

$$\frac{a}{b} = \frac{c}{d} \Rightarrow ad = bc.$$

The cross products of the terms of the correct proportion are equal.

15 : 10 = 3 : 2   15 x 2 = 3 x 10

both products are equal 30

The main property of a proportion can be used to determine the unknown term:

DIRECTLY PROPORTIONAL AMOUNTS

As one amount increases, the other one increases at the same rate.

The relationship between the number of items sold and the total cost of the purchase is directly proportional. The more items are sold, the higher the total cost of the purchase.

1.6 kg of apples cost $5.76. How much will 10 kg cost?

INVERSELY PROPORTIONAL AMOUNTS

As one amount decreases, the other one increases at the same rate.

If the two amounts are changing such that the product of the corresponding values of these amounts is a constant, then the amounts are inversely proportional.

Two rectangles have the same area.
The length of the first rectangle is 36 cm and the width is 24 cm. The length of the second rectangle is 48 cm. Determine the width of the second rectangle.

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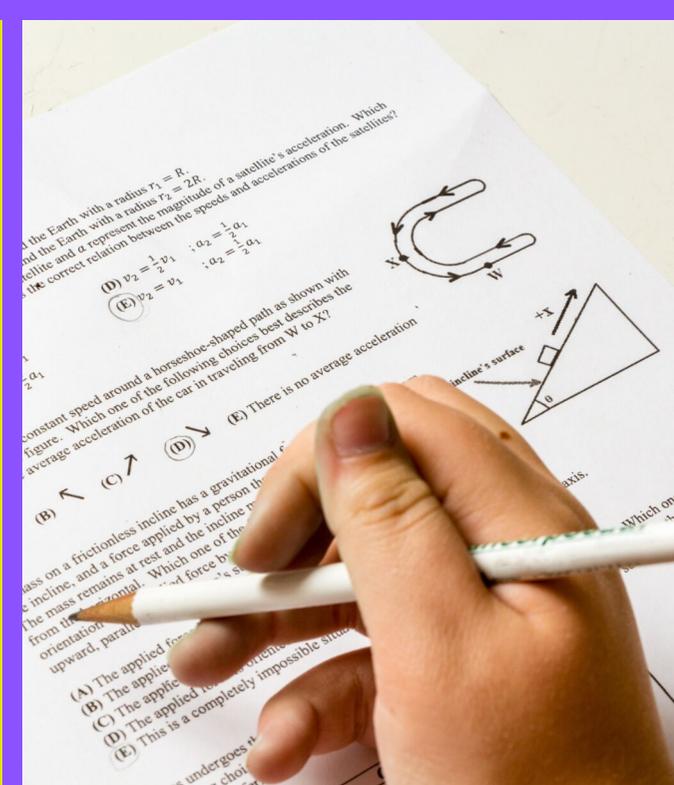
PLEASE CONTINUE TO GRADE 8 LESSON 3!

YOU ROCK!

With questions, requests or suggestions email us at intomath101@gmail.com

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