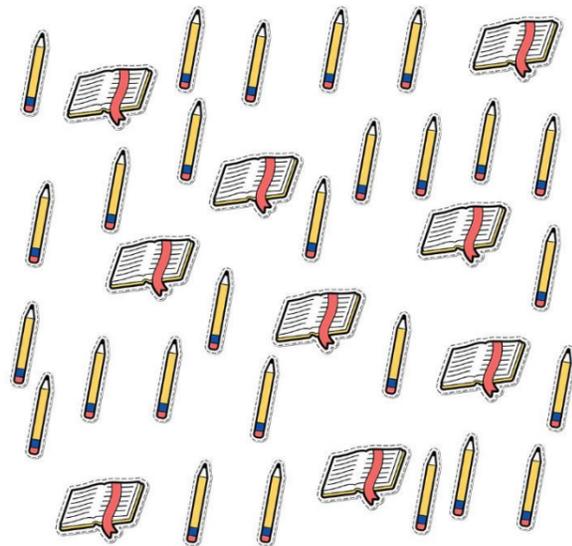# RATIO

KNOWLEDGE ORGANISER

Overview

Ratio we learn:

- Using Ratio Language
- The Ratio Symbol
- Ratio and Fractions
- Scale Drawings
- Using Scale Factors
- Similar Shapes
- Ratio Problems
- Proportion Problems
- Recipes
- Adding or Multiplying Knowledge

Definitions

A ratio compares values, telling us how much of one thing there is compared to another thing. Proportion is a part, share or number considered in comparative relation to a whole.

Ratio Language and the Ratio Symbol

Ratio Language

For every baseball, there are two footballs.
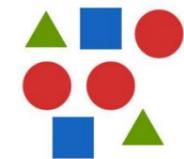
For every basketball, there are two tennis balls.

There are four jars for every six hearts.

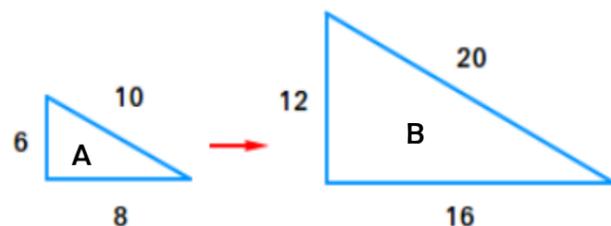There are two jars for every three hearts.

The Ratio Symbol

The ratio of cars to planes is 2:1

The ratio of yachts to rockets is 2:4 or 1:2

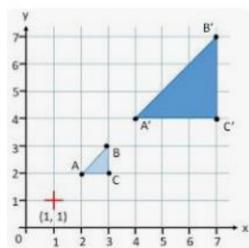Squares: Circles
2 : 3

Squares: Triangles
2 : 2 or 1 : 1

Scale Factors and Similar Shapes

Scale Factor

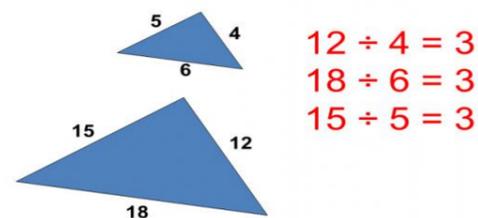Shape A has been enlarged by a scale factor of 2 to make shape B.

Shape B is two times bigger than shape A.

The lighter triangle has been enlarged by a scale factor of 3 to make the darker triangle. The darker triangle is 3 times bigger than the lighter triangle.
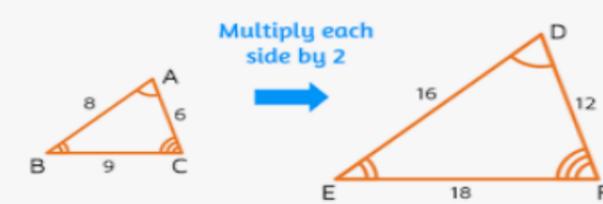
Similar Shapes

A shape is similar if their lengths have the same ratio

$12 \div 4 = 3$
$18 \div 6 = 3$
$15 \div 5 = 3$

All sides have the same ratio, therefore the shape is similar. Similar because of side, side, side. (SSS)

The scale factor of △ABC to △DEF is **2**.

Multiply each side by 2

Ratio and Fractions/ Proportion

Ratio Fractions

The ratio of apples to blueberries is 3 : 5

The fraction of apples is 3/8 and the fraction of blueberries is 5/8.

The ratio of blue to red is 3 : 2

The fraction of blue is 3/5 and the fraction of red is 2/5.

Proportion

Proportions are different to ratios. Rather than comparing different parts to one another, proportion compares one section to the whole amount (like fractions).

Example: In every pack of 11 balls, 1 ball is a basketball. Therefore, if there were 44 balls, 4 would be basketballs.

Key Vocabulary

| Ratio | Proportion | Scale Factor | Ratio Language | Scale Drawings | Similar Shapes | Recipes | 'For every... there are...' |