Ratios and Proportions

1) If in your class, there are 34 girls and 43 boys, then express the ratio between boys and girls ?
Solution:
Given:
Number of boys = 43
Number of girls = 34
Ratio of number of boys to girls = 43 : 34

2) What value of n will make this a proportion , 6 / 15 = n / 25?
Given:
6 / 15 = n / 25
n = 25 x 6 / 15 = 10

The value of n = 10 makes 6 / 15 = n / 25 as proportion.

3) Column A Column B
2 inches to 4 inches 2 foot to 72 inches
Which is greater?

Solution:
2 inches to 4 inches = 2 / 4 = ½
1 foot = 12 inches
2 foot = 24 inches
2 foot to 72 inches = 24 / 72
= 1/3
Column A is greater that Column B.

4) A score of 72 points was shared by 3 players in a basket ball team in the proportion 2:3:4. How many more points did the highest scorer score compared to the lowest scorer?
Solution:
3 players share 72 points in the ratio 2:3:4.
That is, their points are 2k, 3k, and 4k, where k is a constant.
Total points is 2k + 3k + 4k = 9k.

9k = 72 =======> k = 8

Points of the highest scorer = 4(8) = 32 points.
Points of the lowest scorer = 2(8) = 16 points.
Difference between the highest scorer and lowest scorer = 32 – 16 = 16 points.

5) 4 cups of tea contains milk and water in the ratio 3 : 1. How much of milk is used to prepare 4 cups of tea?
Solution:
Given:
4 cups of tea contains milk and water in the ratio 3:1.
This means that to prepare 4 cups of tea, we need 3 cups of milk and a cup of water.
So, to prepare 4 cups of tea, we need 3 cups of milk.

6) Find 3 equivalent ratios for 1/5 ?
Solution:
To find: 3 equivalent ratios of 1/ 5
1 / 5 can be written as 1k/5k, where k is a real number not equal to 0.
For k = 2, 3, 4 the three equivalent ratios of 1/5 is
2 /10, 3/15, and 4 / 20.

7) Find whether the ratios are equal , 4/5 = 5/6
Solution:
4/5 = 5/6 is 4:5::5:6
Product of the extremes = 4 x 6 = 24
Product of the means = 5 x 5 = 25.
Since, they are not equal, the given ratios are not equal.

8)Angles of the triangle are in the ratio 3:4:5. Find the angles?
Solution:
Given:
Angles of a triangles are in the ration 3:4:5.
That is, angles are 3k, 4k, 5k, where k is a non zero real number.
By the property of the triangle, 3k+ 4k + 5k = 180 degree.
=======> k = 180 / 12 = 15.
So, the angles are 3(15), 4(15), and 5(15).
45 degrees, 60 degrees, 75 degrees.

9) Two cars consume petrol in the ratio 4:5. If both the cars covers the same distance and the second car consumes 25 liters. Find how much petrol the first car uses?
Solution:
Given:
Ratio of Petrol consumption of first to second cars = 4:5
Car 2 consumes 25 liters of petrol.
Let car 1 consumes x liters of petrol.
It can be written in proportions as follows

x/25 = 4/5
Product of the extremes = product of the means.
5x = 25 * 4

x = 20.
First car consumes 20 liters of petrol.

10) Column A Column B
45/55 42/56
Which is greater?
Solution:
45/55 = 9/11
42/56 = ¾
Let us compare 9/11 with ¾ in order.
Product of the extremes = 9 x 4 = 36
Product of the means = 3 x 11 = 33

Since product 36 of the extremes > Product 33 of the means, 9 / 11 > 3 / 4