RATIOS
(Recommended for Grade 9)

1.) If 64 is divided into three parts proportional to 2, 4 and 6, what would the smallest part be?

2.) If 78 is divided into three parts which are proportional to 1, $\frac{1}{3}$, $\frac{1}{6}$, find the middle part.

3.) One L of paint is needed to paint a statue 3m high. Find the number of L it will take to paint (to the same thickness) 540 statues similar to the original but only 1 m high.

4.) Given that the ratio of $3x - 4$ to $y + 15$ is constant, and $y = 3$ when $x = 2$, find x when $y = 12$.

5.) After finding the average of 35 scores, a student carelessly included the average with the 35 scores and found the average of these 36 numbers. Find the ratio of the second average to the true average.

6) In physics, Hooke's law says that the force exerted by a spring is proportional to the amount the spring is stretched. If a force of 70 N is needed to stretch a spring 4 cm, what force is needed to stretch the same spring 7.2 cm?

7) To estimate the number of trout in a lake, the game warden caught 85 trout, tagged them and then released them. Later, he caught 95 trout and found tags on 7 of them. Approximately how many trout are in the lake?

8) A rich relative left Jim and his two cousins $1,000,000 to be split in the ratio 10:8:7. How much should Jim - the most beloved of the three – receive?

9) At Pizza Delight in Halifax the prices are:
- (i) one 6" pizza for $4.99
- (ii) two 6" pizza for $7.49,
- (iii) one 9" pizza costs $7.99.
Which are the best and the worst deal.

10) The sides of the base of the great pyramid of Giza are 230 m. It has a height of 75 m. For the sand castle contest, Peter wants to build a model of the Giza pyramid with a height of 1.5 m. What volume of sand does Peter need to complete his construction?

11) The sum of three numbers is 98. The ratio of the first to the second is 2:3, and the ratio of the second to the third is 5:8. Find the second number.

12) Two identical jars are filled with equal numbers of marbles. The marbles are coloured red or white. The ratio of red to white marbles is 7:1 in Jar I and 9:1 in Jar II. If there are 90 white marbles all together, how many red marbles are in Jar II?

ANSWERS: 1.) 32/3   2.) 52/3   3.) 60 L   4.) 7/3   5.) 1:1

6) 126 N   7) 1154 trout   8) $400,000 9) best (iii), worst (i) 10) 10.58 11) 30 12) 360