Ratio – Exercise 1

1. Simplify the following ratios:
   a) 2:6   b) 10:15
   c) 24:18   d) 56 : 49

2. What is the ratio of shaded to non-shaded triangles?

3. If £30 is split between two people in the ratio 3:2, what does each get?

4. To make orange squash I mix concentrate and water in the ratio 2:7. If I use 150ml of concentrate, how much water do I use?

5. 120 sweets are shared out into three piles, in the ratio 3:4:1. How many more sweets does the biggest pile have then the smallest?

6. To make orange squash I mix concentrate and water in the ratio 2:7. If I use 150ml of concentrate, how much water do I use?

7. [JMC 2010 Q10] At the Marldon Apple-Pie-Fayre bake-off, prize money is awarded for 1st, 2nd and 3rd places in the ratio $3:2:1$. Last year Mrs Keat and Mr Jewell shared third prize equally. What fraction of the total prize money did Mrs Keat receive?

8. If $18:x = x:8$, find x.

9. The ratio of red to blue to green marbles in a bag is 3 : 10 : 4. If there are 39 red and blue marbles altogether, how many green marbles are there?

10. [IMC 2009 Q9] Joseph's flock has 55% more sheep than goats. What is the ratio of goats to sheep in the flock?

11. [JMC 2012 Q17] There are six more girls than boys in Miss Spelling's class of 24 pupils. What is the ratio of girls to boys in this class?

12. [JMO 2010 A2] Given that $x:y = 1:2$ and $y:z = 3:4$, what is $x:z$?

13. [JMC 2013 Q19] A swimming club has three categories of members: junior, senior, veteran. The ratio of junior to senior members is $3:2$ and the ratio of senior members to veterans is $5:2$. Which of the following could be the total number of members in the swimming club?
    A 30   B 35   C 48
    D 58   E 60

14. [JMO 2012 A8] An athletics club has junior (i.e. boy or girl) members and adult members. The ratio of girls to boys to adults is 3 : 4 : 9 and there are 16 more adult members than junior members. In total, how many members does the club have?

15. [JMO 2015 A4] My fruit basket contains apples and oranges. The ratio of apples to oranges in the basket is 3 : 8. When I remove one apple the ratio changes to 1 : 3. How many oranges are in the basket?

16. [JMO 2004 A8] A large pan contains a mixture of oil and water. After 2 litres of water are added to the original contents of the pan, the ratio of oil to water is $1:2$. However, when 2 litres of oil are added to the new mixture, the ratio becomes $2:3$. Find the original ratio of oil to water in the pan.

☠ [STMC Final 2007/08 Q1] Anne, Becky and Charlotte had sums of money in the ratio 7:6:5. One of them gave £9 to one of the others and this changed the ratio (in the same order of names) to 6:5:4. The total sum of money remained the same; what was it?