

## Ratio: Direct proportion

- 1) A football pitch is 108m long and 72m wide. Write the ratio of its length to its width in its simplest form.
- 2) The distance from the earth to the sun is approximately 150 million km, and to the moon is approximately 400,000km. Write the ratio of these distances in the form k:1.
- 3) The distance from A to B on a map is 3.5cm. On the ground it is 7km. Find the ratio "distance on map : distance on ground" in its simplest form.
- 4) Write each of the following ratios: (i) in its simplest form using whole numbers (ii) in the form k:1 (iii) in the form 1:k  
(a) 240:600 (b) 1km:4cm (c) 1.2:0.45
- 5) Some material is advertised at £8.50 for 5 metres.  
(a) If I need 8 metres, how much will it cost?  
(b) How many metres can I buy for £50?
- 6) A car travels 456km on 48 litres of petrol.  
(a) How far will it travel on 30 litres?  
(b) How many litres will it use in travelling 171km?
- 7) A pack of 72 exercise books weighs 4.2kg.  
(a) How many exercise books would weigh 10kg?  
(b) How much will 20 exercise books weigh?
- 8) If £1 is worth 2.40 Deutschmarks, how much is 300DM in pounds?
- 9) A map has a scale of 1:25000.  
(a) If the distance from A to B is 5.2cm on the map, how far is it on the ground?  
(b) If the distance from C to D is 13.5km on the ground, how far is it on the map?
- 10) The ratio of the weight of a small tin of beans to a large tin is 3:5.  
(a) If the small tin weighs 240g, how much does the large tin weigh?  
(b) If the large tin weighs 650g, how much does the small tin weigh?  
(c) Write the weight of the small tin as a percentage of the weight of the large tin.
- 11) (a) Increase £150 in the ratio 5:7 (b) Increase 37cm in the ratio 4:9  
(c) Decrease £264 in the ratio 11:8 (d) Decrease 37cm in the ratio 9:4
- 12) What must we multiply:  
(a) 12 by to get 28 (b) 18 by to get 8? (c) 24 by to get 42 (d) 42 by to get 24?

## Ratio: Sharing in a given ratio

- 1) Ann and Belinda do a job and are paid £96 for their work. If Ann worked for 7 hours and Belinda for 5 hours, how should they share the money?
- 2) A firm has a policy of splitting its advertising budget between television, radio and magazines in the ratio 8:5:3. This year's budget is £56000. How much will be spent on each type of advertising?
- 3) An Education Authority has £312,000 to divide between its schools for them to spend on computer equipment. It decides to give 4 times as much to each secondary school as to each primary school. There are 60 primary schools and 24 secondary schools. How much will each secondary school receive?
- 4) (a) Increase £480 in the ratio 3:5 (b) Decrease £480 in the ratio 5:3  
(c) Divide £480 into two parts in the ratio 3:5
- 5) Alan and Mark have a rich aunt who has given their parents £144 000, with instructions that it is to be shared between the boys in the ratio of their ages. At present Alan is 5 and Mark is 3.  
(a) If the money is shared out now, how much will each receive?  
Their parents decide that they will wait a few years before sharing out the money.  
(b) If they wait 2 years, how much will each receive then?  
(c) In fact when they do share it out, Mark receives £64000. How many years did the parents wait?
- 6) The ratio of Tom's age to Sam's age is 3:5. In 10 years time it will be 7:10. How old is Tom?