

Simplify the following ratios

1. 8:4
2. 12:9
3. 15 : 20 : 35
4. 18 : 24 : 48
5. 21: 14: 28

Write the following in the form 1: n or 1:n:m

1. 8 : 2
2. 12 : 40
3. 5 : 7
4. 8 : 24 : 12
5. 10 : 14 : 28

Write the following in the form A:B:C

1. A:B s 3:2. B:C is 5:4
2. A:B is 8:5 B:C is 7:4
3. A:B is 9:2 A:C is 6:5
4. A:B is 9:4 B:C is 8:7
5. A:B is 11:5 A:C is 9:4

Proportion

1. 8 apples cost 40p. How much for 5 apples?
2. A recipe uses 350g flour for 5 buns. How much is needed for 11 buns?
3. 6 pens cost £4.80. How much do 11 pens cost?
4. 300g of sweets cost £1.44. How much for 1kg?
5. 4 men take 7 hours to do some work. How long would it take 3 men?
6. It takes three hosepipes 4 hours to fill a pond. How long would it take five hosepipes?

Exchange Rates

1. £1:\$1.25 How many \$ for £250?
2. £1: R 24 How many £ for R500?
3. £1: AU\$2.15 How many £ for AU\$600?
4. \$1: £0.71 How many £ for \$650?
5. £1 : \$1.43 How many £ for \$450?
6. £1 : AU\$2.43 How many £ for AU\$450?

Best Value

1. Bill wants to travel 16 miles.
Taxi A £3.00 + £1.20 per mile
Taxi B £6.50 + £0.98 per mile
Taxi C £10.00 + £0.76 per mile
Which taxi should he use and how much would it cost?
2. Mary wants to go shopping. She hasn't got a car so chooses to go by bus to one place. She wants to buy two legs of lamb and twelve tins of soup.
Centre A Lamb: £11.20 per leg
Soup: £1.45 per tin
Centre B Lamb: £14.00 per leg
Soup: £0.98 per tin
To which shopping centre should she go?
3. The Smiths want to go on holiday. There are four of them. They choose to go for seven nights.

Travel Agent A
Return Flight £284.95 each.
Hotel £78.95 per person per night

Travel Agent B
Return Flight £437.55 each.
Hotel £57.14 per person per night

With which travel agent should the Smith family book their holidays?

How much did each person get?

1. Bill and John share an inheritance in the ratio 4:7. The inheritance was £781. How much did each person receive?
2. Naveed, Akash and Nimrah receive some money for Eid. The money they receive is in the proportion 7:3:6. Naveed gets £161. How much do the other two get?
3. Ian, Joanne and Mary buy some shares in the proportion 8:11:4. Joanne pays £954 more than Ian on the shares. How much does each person pay for the shares?
4. Neil, Simon and Matthew went out for a curry. Altogether, the bill came to £128. They put in all the money they had with them in the ratio 4:5:7. How much did each person pay?
5. Martin, Vicky and Mark all go on holiday with their families. The size of their families are in the ratio 5:3:4. The amount they spent on their holidays per person was in the ratio 4:7:6. If Vicky spent a total of £396.90, how much did Martin and Mark spend?

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Probability

1. The ratio of throwing heads or tails on a biased coin is 6:5. Bill threw the coin 550 times. How many times would you expect it to come up heads?
2. The ratio of winning to losing at a game of cards are 3:7. What are the chances of winning four games in a row?
3. A dice has a 0.3 chance of landing on 6. The chances of rolling any number from 1 to 5 are the same as each other. What is the ratio for rolling a 6 to rolling an odd number?
4. Bill and Ted were investigating prime and composite numbers. They split all the numbers from 1 to 200 into blocks of 20 (ie 1 – 20, 21 – 40, 41 – 60 and so on).

Bill said, "As the number of the block gets higher, the ratio of prime to composite gets smaller."

For each block, work out the ratio in the form 1:n to determine whether Bill was correct.

Ratio and Proportion

Write these ratios as fractions

1. 8 : 4 : 9
2. 15 : 7 : 11
3. 15 : 20 : 35 : 18
4. 18 : 24 : 48 : 8 : 12
5. 42 : 14 : 28 : 15 : 16

Write these fractions as ratios in their simplest form

1. $\frac{16}{25}$ $\frac{45}{50}$
2. $\frac{3}{10}$ $\frac{4}{25}$
3. $\frac{28}{35}$ $\frac{15}{50}$
4. $\frac{62}{100}$ $\frac{84}{200}$

Midpoints and Endpoints

A line segment AB runs from (3,7) to (5,15). What are the co-ordinates of the following points.

- a The midpoint
- b The point at a ratio of 2:3 along AB
- c The point at a ratio of 4:8 along AB