

Hard

- 1) There are 20 balls in a bag. 50% of them are red. How many balls are red?
 $50\% \text{ of } 20 = 20 \div 2 = 10 \text{ balls}$
- 2) For one Algebra test, Nancy had to answer 100 questions. Of these 100 questions, Nancy answered 12 of them correctly. What percent did Nancy answer correctly?
 $12/100 = 12\%$
- 3) A sofa costing £400 has 25% off in a sale. How much would you save on the sofa?
 $25\% \text{ of } £400 = 400 \div 4 = £100$
- 4) Sue and Bill have a bag containing 240 marbles. 25% of these marbles are broken. How many are broken?
 $25\% \text{ of } 240 \text{ marbles} = 240 \div 4 = 60 \text{ marbles}$

Harder

- 1) Tim measures 120cm in height. His brother Phil is 5% shorter. How much shorter is Phil?
 $5\% \text{ of } 120 = 120 \div 100 = 1.2 \times 5 = 6 \text{ cm shorter.}$
- 2) Ben and Sam have a bag containing 48 sweets. Whilst watching a film they eat 75% of the sweets. How many sweets have they eaten?
 $75\% \text{ of } 48 = \frac{3}{4} \text{ of } 48 = 48 \div 4 = 12 \times 3 = 36 \text{ sweets.}$
- 3) Mr Smith wants to buy a new car. He finds a car he likes for £5500 and then manages to negotiate 10% off the price. How much is he saving on the car?
 $10\% \text{ of } £5500 = 5500 \div 10 = £550 \text{ he is saving.}$
- 4) There are 400 pupils in a school and 75% of the pupils are boys. How many of the children are boys?
 $75\% = \frac{3}{4} \quad \frac{3}{4} \text{ of } 400 = 400 \div 4 = 100 \times 3 = 300 \text{ pupils are boys.}$

- 5) John has 28 chocolate bars. He gives 20% of them to his mum. How many did he give to his mum?

$20\% = 2/10$ $2/10$ of 28 = $28 \div 10 = 2.8 \times 2 = 5.6$ bars he gives to his mum.

Hardest

- 1) If 1200 people go to a football match and 55% leave at half time.
- a) How many people left? 55% of 1200 = 660 people leave at half time.
- b) How many people stayed for the second half? $1200 - 660 = 540$ stayed for the second half.
- 2) I buy 10 CDs, which cost me £60. I take 30% of them back to the shop.
- a) How many do I take back to the shop?
 $30\% = 3/10$ $3/10$ of 10 = $10 \div 10 = 1 \times 3 = 3$
- b) How many do I decide to keep?
 $10 - 3 = 7$ CDs I decide to keep.
- 3) There are 130 people living on Albert Square. 60% of them are women.
- a) How many of them are women?
 $60\% = 6/10$ $6/10$ of 130 = $130 \div 10 = 13 \times 6 = 78$ are women.
- b) How many of them are men?
 $130 - 78 = 52$ are men.
- 4) I bought a shirt costing £20 has 80% off in a sale.
- a) How much did I save?
 $80\% = 8/10 = 4/5$ $4/5$ of 20 = $20 \div 5 = 4 \times 4 = £16$ is how much I save.
- b) What is the new price of the shirt?
 $£20 - £16 = £4$ is the new price of the shirt.

Herculean

- 1) There are 20 painters. Of these painters, 10 of them are painting the interior of the house. What percent of these painters are painting the interior?
 $10/20 = 50/100 = 50\%$ are painting the interior of the house.

2) There are 25 students in a class and 9 of these students passed their Biology test. What percentage of these students passed their test?

$9/25 = 36/100 = 36\%$ of the students passed their test.

3) One baseball team played 40 games throughout their entire season. If this baseball team won 36 of those games, then what percentage of their games did they win? 90%

4) Jess went to her local zoo that featured 20 monkey exhibits. 6 of those exhibits were closed. What percent of the zoo's exhibits were open?

$6/20 = 30/100 = 30\%$ were closed.

Closed = $100\% - 30\% = 70\%$ were open.