

1 Fraction of an amount



- a) Work out $\frac{7}{12}$ of 4.8 kg.
- b) Ana spends $\frac{2}{5}$ of her money on a coat, then $\frac{1}{4}$ of what is left on shoes. What fraction of her money is left?

a) $4.8 \div 12 \times 7 = 2.8 \text{ kg}$

b) $\frac{3}{5}$ is left, then $\frac{3}{4}$ of that

b) $\frac{3}{4} \times \frac{3}{5} = \frac{9}{20}$

2 Percentage of an amount



- a) Work out 112% of 65 m.
- b) Explain why 18% of 50 is the same as 50% of 18. Use this to work out 18% of 50 in your head.

a) $1.12 \times 65 = 72.8 \text{ m}$

b) both are $18 \times 50 \div 100$

b) half of 18 = 9

3 One number as a percentage of another



- a) Write 2.4 kg as a percentage of 600 g.
- b) A team played 25 games. It won 17 and drew 3. What percentage of its games did it lose?

a) $2400 \div 600 \times 100 = 400\%$

b) $25 - 17 - 3 = 5 \text{ lost}$

b) $5 \div 25 \times 100 = 20\%$

4 Percentage change



- a) Decrease 84 by 12.5%.
- b) A price rose from £36 to £45. Mo says it rose by 20%. Explain his mistake and find the right answer.

a) $84 \times 0.875 = 73.5$

b) he did $9 \div 45$: divide by the original

b) $9 \div 36 \times 100 = 25\%$



Percentages, growth and decay

revision mat answers

5 Reverse percentages



- a) With 15% off in a sale, a jacket costs £59.50. What was its price before the sale?
- b) A train fare rises by 4% to £20.28. By how much did the fare rise?

a) $59.50 \div 0.85 = £70.00$

b) $20.28 \div 1.04 = £19.50$

b) $20.28 - 19.50 = £0.78$

6 Simple interest



- a) £650 is invested at 2.8% simple interest a year. Work out its value after 5 years.
- b) £1200 earns £126 simple interest in 3 years. Work out the rate of interest a year.

a) $650 \times 0.028 = 18.20, \times 5 = 91, \text{ so } £741.00$

b) $126 \div 3 = 42 \text{ a year}$

b) $42 \div 1200 \times 100 = 3.5\%$

7 Compound growth



- a) £3200 is invested at 4.5% compound interest a year. Work out its value after 3 years.
- b) What single percentage increase is the same as 4.5% a year for 3 years? Give your answer to 1 decimal place.

a) $3200 \times 1.045^3 = £3651.73$

b) $1.045^3 = 1.1412$

b) 14.1%

8 Compound decay



A car worth £18 500 loses 15% of its value each year.

- a) Work out its value after 3 years.
- b) Ella says that after 2 years it has lost 30% of its value. Explain why she is wrong.

a) $18\,500 \times 0.85^3 = £11\,361.31$

b) the second 15% is of a smaller value

b) $0.85^2 = 0.7225$: it has lost 27.75%