N5 Maths: Percentages

You may use a calculator for all of these questions.

Q1 **a)** Calculate the value of a painting that cost £3500 and appreciates at 4% p.a. over 10 years.

b) £25 000 is saved at an interest rate of 1.6% per annum. Calculate the balance after 5 years.

c) Microbes in a petri dish increase in number at a rate of 24% per hour. If there were 2 billion microbes initially, how many would there be 3 hours later, correct to 3 significant figures?

d) A classic car costs £98 000 and appreciates by 5% p.a. Find its value after 6 years (to 4 s.f.)

e) Scotland's population was 5.454 million in 2019. At the time, it was projected to increase by 2.5% over each of the following 24 years. Calculate the projected 2043 population (4 s.f.)

Q2 **a)** A company's IT equipment is valued at £165 000 and depreciates by 12% annually. Calculate the value of the equipment 5 years later, to the nearest £10.

b) A puddle dries up in such a way that the amount of water it contains reduces by 23% per hour. If it contains 4.8 litres initially, how much water will it contain 2½ hours later? (2 s.f.)

c) Conservationists estimate that the population of an endangered species is reducing by 12.8% per year. If 260 animals are currently known to exist, how many will there be 2 years later?

d) A government department must reduce its expenditure by 4% p.a. over a period of 5 years. The department's initial budget was £12.6 million. Calculate the budget after 5 years (3 s.f.)

e) Due to the effects of inflation, money loses its buying power at a rate of around 3.5% per year. Calculate the buying power that £1000 today will have in 8 years' time (nearest £).

Q3 **a)** A family's rent of £750 per month is 20% of their household income. Calculate their income.

b) A 77-calorie egg provides 3.85% of a woman's recommended daily intake. Calculate this value.

c) Fiona uses 15% of her bank balance to buy a £540 watch. How much was in her bank account?

d) Ross saves £315 each month, which is 17.5% of his monthly salary. Find his monthly salary.

Q4 **a)** An investment has increased in value by 16%. It is now worth £2726. Find its original value.

b) The population of a city has increased by 3% to 479 259. What was it before the increase?

c) A shop increases the price of an item by 2.5% to £49.20. Calculate its original price.

d) After a 3.2% pay rise, Alan earns £1692.48 per month. Calculate his previous monthly pay.

e) A child's car seat costs £66.99, including VAT of 5%. Calculate the price, exclusive of VAT.

Q5 **a)** A washing machine is priced at £368 in a 20% sale. Calculate its price before the sale.

b) Yearly visits to a tourist attraction fall 2.4% to 84 424. How many visits were there previously?

c) An investment has decreased in value by 29%. It is now worth £25 915. Find its original value.

d) A town's population declines over time by 4% to 50 328. Calculate the previous population.

e) A school roll in a rural area falls by 5% to 228. How many pupils were on the roll previously?

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