National 5 & Int. 2   Percentages
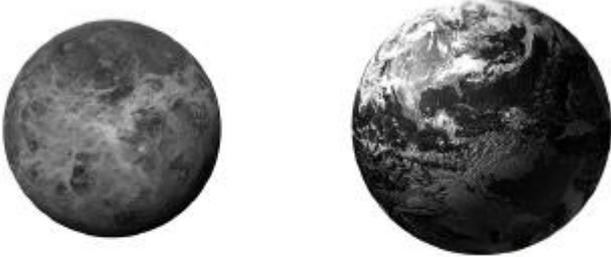
2018 P2 Q1	Households in a city produced a total of 125 000 tonnes of waste in 2017. The total amount of waste is expected to fall by 2% each year. Calculate the total amount of waste these households are expected to produce in 2020.	3
Ans	*117649 tonnes*	
2018 P2 Q11	Venus and Earth are two planets within our solar system. Venus Earth The volume of Venus is approximately $9 \cdot 3 \times 10^{11}$ cubic kilometres. This is 85% of the volume of Earth. Calculate the volume of Earth.	3
Ans	$1 \cdot 09 \times 10^{12} \ km^3$	
2017 P2 Q2	A necklace is valued at £1200. Its value is expected to increase by $4 \cdot 5\%$ per year over the next 3 years. Calculate the expected value of the necklace after this time. Give your answer to the nearest pound.	3
Ans	*£1369*	
2017 P2 Q5	A theatre group sold 4830 tickets for their show. This was 15% more than they sold last year. How many tickets did they sell last year?	3
Ans	*4200 tickets*	
2016 P2 Q1	A drinks manufacturer is reducing the sugar content of one of their fizzy drinks by 8% per year over the next 3 years. The sugar content of a standard can is currently 35 grams. Calculate the sugar content of a standard can after 3 years.	3

Ans	*27·3 grams*	
2015 P2 Q1	A house is valued at £240 000. Its value is predicted to rise by 2·8% per annum. Calculate its predicted value after 2 years.	3
Ans	*£253628·16*	
2015 P2 Q8	James paid £297·50 for a laptop in a sale. The discount in the sale was 15%. Calculate the original price of the laptop.	3
Ans	*£350*	
2014 P1 Q9	480 000 tickets were sold for a tennis tournament last year. This represents 80% of all the available tickets. Calculate the total number of tickets that were available for this tournament.	3
Ans	*600 000*	
2014 P2 Q1	There are 964 pupils on the roll of Aberleven High School. It is forecast that the roll will decrease by 15% per year. What will be the expected roll after 3 years? Give your answer to the nearest ten.	3
Ans	*590*	
2013 P2 Q2	A company buys machinery worth £750 000. The value of the machinery depreciates by 20% per annum. The machinery will be replaced at the end of the year in which its value falls below half of its original value. After how many years should the machinery be replaced? **You must explain your answer.**	4
Ans	*4 years because 307 200 < 375 000*	

2012 P2 Q13	Due to the threat of global warming, scientists recommended in 2010 that the emissions of greenhouse gases should be reduced by 50% by the year 2050. The government decided to reduce the emissions of greenhouse gases by 15% **every ten years**, starting in the year 2010. Will the scientists' recommendations have been achieved by 2050? **You must give a reason for your answer.**	4
Ans	*No, since 0·522 > 0·5*	
2011 P2 Q2	It is estimated that house prices will increase at the rate of 3·15% per annum. A house is valued at £134 750. If its value increases at the predicted rate, calculate its value after 3 years. Give your answer correct to **four** significant figures.	4
Ans	*£147900*	
2010 P2 Q1	An industrial machine costs £176 500. Its value depreciates by 4·25% each year. How much is it worth after 3 years? Give your answer correct to **three** significant figures.	4
Ans	*£155000*	
2009 P2 Q1	A new book "Intermediate 2 Maths is Fun" was published in 2006. There were 3000 sales of the book during that year. Sales rose by 11% in 2007 then fell by 10% in 2008. Were the sales in 2008 more or less than the sales in 2006? **You must give a reason for your answer.**	3
Ans	*There were fewer sales in 2008 because 2997 < 3000.*	
2008 P2 Q1	Calculate the **compound interest** earned when £50 000 is invested for 4 years at 4·5% per annum. Give your answer to the nearest penny.	4
Ans	*£9625·93*	

2007 P2 Q1	Ian's annual salary is £28 400. His boss tells him that his salary will increase by 2·3% per annum. What will Ian's annual salary be after 3 years? Give your answer to the nearest pound.	3
Ans	£30405	
2006 P2 Q1	The value of a boat decreased from £35 000 to £32 200 in one year. (*a*) What was the percentage decrease? (*b*) If the value of the boat continued to fall at this rate, what would its value be after a **further** 3 years? Give your answer to the nearest hundred pounds.	1 3
Ans	(*a*) 8% (*b*) £25100	
2005 P2 Q1	In the evening, the temperature in a greenhouse drops by 4% per hour. At 8 pm the temperature is 28° Celsius. What will the temperature be at 11 pm?	3
Ans	24·8° Celsius	
2004 P2 Q1	The average Scottish house price is £77 900. The average price is expected to rise by 2·5% per month. What will the average Scottish house price be in 3 months? Give your answer correct to three significant figures.	3
Ans	£83900	
2002W P2 Q3	The value of a house increased from £85 000 to £86 700 in one year. (*a*) What was the percentage increase? (*b*) If the value of the house continued to rise at this rate, what would its value be after a **further** 3 years? Give your answer to the nearest thousand pounds.	1 3
Ans	(*a*) 2% (*b*) £92000	
2002 P2 Q10	The population of Newtown is 50 000. The population of Newtown is **increasing** at a steady rate of 5% per annum. The population of Coaltown is 108 000. The population of Coaltown is **decreasing** at a steady rate of 20% per annum. How many years will it take until the population of Newtown is greater than the population of Coaltown?	5
Ans	3 years	

2001 P2 Q1	The population of a city is increasing at a steady rate of 2·4% per annum. The present population is 528 000. What is the expected population in 4 years time? Give your answer to the nearest thousand.	3
Ans	*581000*	