

Summer Term Maths Year 10

Repeated percentage change

Day 3

Week 6

1 Match the percentage increase/decrease to the multiplier.

| | |
|---------------------|-------|
| An increase of 5% | 0.995 |
| A decrease of 0.5% | 1.5 |
| An increase of 50% | 1.05 |
| An increase of 0.5% | 1.005 |
| A decrease of 5% | 0.95 |

2 Rosie has started a new job on a salary of £23,000. Every year she gets a 2.5% pay rise. Which calculation shows what Rosie's salary will be in 3 years?

$$23000 \times 2.5^3$$

$$23000 \times 1.25^3$$

$$23000 \times 1.025^3$$

3 The population of a country is increasing every year by 1%.

If the population now is 45 million, what will the population be in 20 years?

54,908,552

4 A shop reduced everything by 20% one week and then a further 10% the week after.

Does this mean that prices have now been reduced by 30%? **No.**

Use these items to investigate.



Socks: 20% then 10% off is £2.88, 30% off is £2.80
Hat: 20% then 10% off is £9, 30% off is £8.75
Top: 20% then 10% off is £15.12, 30% off is £14.70

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5 A car costs £12,000 new. It loses 13% of its value every year. What would the value of the car be after 4 years?

£6874.77

6 Create a story to match these two calculations. *Various answers.*

$$300 \times 1.15^3$$

$$850 \times 0.85^2$$

7 Teddy invests £1000
The bank pays 8% interest in the first year, 4% in the second year and 2% in third year.

How much interest will Teddy have made in total after the 3 years?

£145.66

8 Dora bought a motorbike for £950
The motorbike lost 20% of its value in the first year she owned it and then a further 9% in the second year she owned it.

How much is the motorbike worth now after 2 years?

£691.60

9 Dexter invests some money into a bank account that has compound interest of 5%.

How many years will Dexter have to invest his money before he has doubled his original investment?

15