

Year 9 Higher – Repeated percentage change

1. If £500 is invested for 3 years at a rate of compound interest of 4% per annum, how much will be in the account after 3 years?

2. Dave invests £3000 at a rate of interest of 6% a year. How much is in his account after 5 years?

3. Glenn invests £7000 at a rate of interest of 2% for 4 years.

a. What is the total in his account after the 4 years?

b. How much interest would he have gained?

c. If he had invested the same amount of money in a different account at an interest rate of 4% for only three years would he have made more or less money? Show your working clearly.

4. Annie invests £1500 at a rate of compound interest of 2.5% for 6 years. How much is in her account after the six years?

5. 2. Harry invests £1000 at a rate of interest of 5% a year. After how many years will he have doubled his investment?

6. Henry invests £4500 at a compound interest rate of 5% per annum.
At the end of n complete years the investment has grown to £5469.78.
Find the value of n .

Challenge

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- 7 Ella wants to invest £6000 in a savings account for 2 years.
She finds information about savings accounts at two different banks.

<p>Northway Bank</p> <p>Compound interest</p> <p>of</p> <p>3.8% per annum</p>
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<p>Portland Bank</p> <p>Compound interest</p> <p>of</p> <p>5% per annum in year 1 3.2% per annum in year 2</p>

Ella wants to choose the bank that pays the greater total amount of interest for the 2 years.
Which bank should she choose?
You must show all your working.

8 John buys a house for £219000. The house depreciates in value at 6% each year. What is the value of the house after 7 years?

9. The value of a car depreciates by 15% each year. At the end of 2007, the value of the car was £8490. Work out the value of the car at the end of 2010.

10. 1. Bill buys a new lawnmower.
The value of the lawnmower depreciates by 20% each year.
Bill says "after 5 years the lawnmower will have no value"
a) Bill is wrong. Explain why.

Bill wants to work out the value of the lawnmower after 2 years.

b) By what single number should Bill multiply the value of the lawnmower when new?

11. A ball fell 2 metres onto horizontal ground.
The ball hit the ground and bounced up and down 3 times.

The first time the ball bounced, it rose to 75% of the height it fell from.
The second time the ball bounced, it rose to 75% of the height it reached after the first bounce.
The third time the ball bounced, it rose to 75% of the height it reached after the second bounce.

Work out the height the ball reached after the third bounce.
Give your answer correct to 2 decimal places.