

Repeated percentage increase

Maths

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Repeated percentage increase

1. Write a single calculation which would increase 300 by 10%, then 20%

2. Increase 200 kg by 5%, then 2%

3. Which calculations will NOT increase 500 by 10%, followed by another 10%?

$$500 \times 1.1 \times 1.1$$

$$500 \times 1.1^2$$

$$500 \times 1.2$$

$$500 \times 2 \times 1.1$$

4. Amir is trying to increase £450 by 10%, followed by 5%.

Here is his working out.

$$450 \times 1.1 \times 1.5 = 742.50$$

What mistake has Amir made?

What should the final answer be?



Repeated percentage increase

5. A town has a population of 40 000. The population increases by 15% each year.

What will the population be in 3 years?

6. Mark invests £7000 in a savings account which offers 6.2% interest per annum. How much will he have after 4 years? Give your answer to the nearest pound.

7. Alice wants to invest some money for 5 years. She compares the annual interest rates of two bank accounts.

Standard account

2.3% for two years
1.6% every year after

Advance account

3.1% for one year
1.2% every year after

Which bank account would gain the most interest over 5 years?



Answers



Repeated percentage increase

1. Write a single calculation which would increase 300 by 10%, then 20%

$$300 \times 1.1 \times 1.2$$

2. Increase 200 kg by 5%, then 2%

$$200 \times 1.05 \times 1.02 = 214.2 \text{ kg}$$

3. Which calculations will NOT increase 500 by 10%, followed by another 10%?

$$500 \times 1.1 \times 1.1$$

$$500 \times 1.1^2$$

$$500 \times 1.2$$

$$500 \times 2 \times 1.1$$

4. Amir is trying to increase £450 by 10%, followed by 5%.

Here is his working out.

$$450 \times 1.1 \times 1.5 = 742.50$$

What mistake has Amir made?

He should have calculated
 $450 \times 1.1 \times 1.05$

What should the final answer be? £519.75



Repeated percentage increase

5. A town has a population of 40 000. The population increases by 15% each year.

What will the population be in 3 years? $40\,000 \times 1.15^3 = 60\,835$

6. Mark invests £7000 in a savings account which offers 6.2% interest per annum. How much will he have after 4 years? Give your answer to the nearest pound.

$$7000 \times 1.062^4 = 8\,904.224618... \quad \text{£8 904}$$

7. Alice wants to invest some money for 5 years. She compares the annual interest rates of two bank accounts.

Standard account

2.3% for two years
1.6% every year after

Advance account

3.1% for one year
1.2% every year after

Which bank account would gain the most interest over 5 years?

Standard

$$1.023^2 \times 1.016^3 = 1.0975...$$

Advance

$$1.031 \times 1.012^4 = 1.0813...$$

Standard has most interest

