Outcome 3 – Depreciation

Bronze example

Examples...

(magic multiplier) time × amount

An antique watch depreciates in value at a rate of 4% p.a. It was worth £600. How much will it be worth in 3 years time?

100% - 4% = 96%

Magic Multiplier = 0·96

$(0{\cdot}96)^3 \times 600 = £530{\cdot}84$

Silver example

Examples...

(magic multiplier) time × amount

An antique watch depreciates in value at a rate of 3·8% p.a. It was worth £400. How much will it be worth in 2 years time?

100% - 3·8% = 96·2%

Magic Multiplier = 0·962

$(0{\cdot}962)^2 \times 400 = £370{\cdot}18$

Gold example

Examples... If the percentage increase is different each year...

Year 1 = (magic multiplier) × amount

Year 2 = (magic multiplier) × previous amount

A car is sold for £12 000. The value of the car depreciates at a rate of 15% for the first year and 10% in the second year. Calculate the value of the car after 2 years.

Year 1 = 0·85 × 12 000 = £10 200

Year 2 = 0·9 × 10 200 = £9180

Bronze Questions

Calculate the following after depreciation...

1. 6% decrease p.a. Amount = £3000 Amount after 2 years?
2. 5% decrease p.a. Value = £400 Value after 3 years?
3. 11% decrease p.a. Population = 16 000 Population after 4 years?

4. 10% decrease p.a. Cost = £9000 Cost after 2 years?

5. 7% decrease per hour Temperature = 23°C Temperature after 3 hours?

6. 20% decrease p.a. Value = £1100 Value after 5 years?

Silver Questions

Calculate the following after depreciation...

1. 5·4% decrease p.a. Amount = £6000 Amount after 3 years?
2. 4·8% decrease p.a. Value = £500 Value after 2 years?
3. 2·3% decrease p.a. Population = 20 000 Population after 4 years?

4. 3·65% decrease p.a. Cost = £7000 Cost after 3 years?

5. 6·8% decrease per hour Temperature = 23°C Temperature after 3 hours?

6. 9·83% decrease p.a. Value = £400 Value after 5 years?

Gold Questions

Calculate the following after depreciation...

1. A car is sold for £14 000. The value of the car depreciates at a rate of 20% for the first year and 16% in the second year. Calculate the value of the car after 2 years.

2. Sales of a best selling maths textbook were 3000 in one year. Sales fell by 10% for the first year and 20% in the second year. Calculate the number of copies sold after 2 years..

3. There are 1000 employees in a factory. Due to the recession, there are plans to cut staff by 25% after one year and then by 15% after 2 years. Calculate the number of staff after 2 years.

Bronze Answers

1. £2650·80
2. £342·95
3. 10 038
4. £7290
5. 18·5 °C
6. £360·45

Silver Answers

1. £5079·54
2. £453·15
3. 18 222
4. £6261·14
5. 18·62 °C
6. £238·44

Gold Answers

1. £9408
2. 2160 copies
3. 637 employees