NUMBER: COMPOUND INTEREST & DEPRECIATION

Best Guess Mastery Worksheet (Target Grade 4/5)

I Do

Fin invests $5200 in a savings account for 4 years at a compound interest rate of 3.1% per annum.

Work out the total value of Fin's investment at the end of the 4 years.
Give your answer correct to 2 decimal places.

$ ..... **(3)**

NUMBER: COMPOUND INTEREST & DEPRECIATION

Best Guess Mastery Worksheet (Target Grade 4/5)

We Do

Paige buys a new car for €18500.
The value of the car depreciates by 12% each year.

Work out the value of the car at the end of 3 years.
Give your answer correct to 2 decimal places.

€ ..... **(3)**

NUMBER: COMPOUND INTEREST & DEPRECIATION

Best Guess Mastery Worksheet (Target Grade 4/5)

You Do 1

Darren invests ¥65000 in a fixed-term bond for 5 years.
The bond pays compound interest at a rate of 2.4% each year.

Work out the total value of Darren's investment at the end of the 5 years.
Give your answer to the nearest whole Yen.

¥ ..... **(3)**

NUMBER: COMPOUND INTEREST & DEPRECIATION

Best Guess Mastery Worksheet (Target Grade 4/5)

You Do 2

Emma buys a boat for 24000 CHF.
The value of the boat depreciates by 8.5% each year.

Work out the value of the boat at the end of 4 years.
Give your answer correct to 2 decimal places.

..... CHF **(3)**

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 6/7)

Challenge 1 (Comparing Accounts)

Ryan has £8000 to invest for 3 years. He has two options:

Account A:
Pays compound interest at a rate of 4% per annum for the full 3 years.

Account B:
Pays compound interest at a rate of 5% for the first year, and then 3.5% per annum for the remaining 2 years.

Which account will give Ryan the most money at the end of 3 years, and by how much?
You must show all your working.

..... **(5)**

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 7/8)

Challenge 2 (Exchange Rates & Compound Interest)

Arabella lives in the UK and has £10000 to invest for 3 years. She is considering two banks.

UK Bank:
Pays compound interest at a rate of 4.5% per annum.

US Bank:
Arabella can convert her Pounds to US Dollars. The exchange rate is £1 = $1.30.
The US Bank pays compound interest at a rate of 6% per annum.
At the end of the 3 years, Arabella will convert her total amount back to Pounds. The exchange rate will be £1 = $1.22.

Work out which bank is the better investment for Arabella, and by how much in Pounds (£).

(6)

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 6/7)

Challenge 3 (Reverse Depreciation)

Peter bought a new computer.
The value of the computer depreciates by 15% each year.

At the end of 3 years, the computer is worth €491.30.

Work out the original price Peter paid for the computer.

€ ..... **(3)**

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 6/7)

Challenge 4 (Finding the Compound Rate)

The population of a town is 45000.
The population increases by x% each year.

After 2 years, the population of the town is 48672.

Work out the value of x.

x=..... **(3)**

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 6/7)

Challenge 5 (Ratio, Interest & Depreciation)

Alan and Emily share a prize of £25000 in the ratio 2 : 3.

Alan uses his share to buy a car. The value of the car depreciates by 18% each year.

Emily puts her share in a bank account. The account pays compound interest at a rate of 3.5% each year.

Work out the difference in value between Alan's car and Emily's bank account at the end of 4 years.
Give your answer correct to the nearest Pound.

£ ..... **(5)**

NUMBER: FINANCIAL MATHEMATICS

Best Guess Mastery Worksheet (Target Grade 6/7)

Challenge 6 (Mixed Multipliers)

Steve buys a house for £200000.

For the first 2 years, the value of the house increases by 5% each year.
For the following 3 years, the value of the house decreases by 2% each year.

Work out the value of the house at the end of the 5 years.
Give your answer to the nearest Penny.

£ ..... **(4)**

Answers & Worked Solutions

I Do:

1. Multiplier = 1 + 0.031 = 1.031
2. Calculation = 5200×1.031^4
3. Answer = $5875.407655... → **$5875.41**

We Do:

1. Multiplier = 1 − 0.12 = 0.88
2. Calculation = 18500×0.88^3
3. Answer = 12607.232 → **€12607.23**

You Do 1:

1. Multiplier = 1.024
2. Calculation = $65000 \times 1.024^5 = 73183.489...$
3. Answer = **¥73183**

You Do 2:

1. Multiplier = 1 − 0.085 = 0.915
2. Calculation = $24000 \times 0.915^4 = 16815.191...$
3. Answer = **16815.19 CHF**

Challenge 1:

1. Account A: 8000×1.04^3 = £8998.91
2. Account B: $8000 \times 1.05 \times 1.035^2 = 8400 \times 1.071225$ = £8998.29
3. Difference: 8998.91 − 8998.29 = £0.62.
4. Conclusion: **Account A by £0.62**

Challenge 2:

1. UK Bank value: $10000 \times 1.045^3 = £11411.66$
2. Convert to Dollars: $10000 \times 1.30 = \$13000$
3. US Bank value: $13000 \times 1.06^3 = \$15483.216$
4. Convert back to Pounds: $15483.216 \div 1.22 = £12691.16$
5. Difference: $12691.16 - 11411.66 = £1279.50$
6. Conclusion: **US Bank by £1279.50**

Challenge 3:

1. Multiplier = 0.85
2. Equation: $P \times 0.85^3 = 491.30$
3. Solve: $P = 491.30 \div 0.614125 = 800$
4. Answer: **€800**

Challenge 4:

1. Equation: $45000 \times \text{Multiplier}^2 = 48672$
2. $\text{Multiplier}^2 = 48672 \div 45000 = 1.0816$
3. Multiplier = $\sqrt{1.0816} = 1.04$
4. Therefore, increase is 4%. ***x* = 4**

Challenge 5:

1. Total parts = 5. Alan's share = (25000 ÷ 5) × 2 = £10000. Emily's share = (25000 ÷ 5) × 3 = £15000.
2. Alan's car value: $10000 \times 0.82^4 = 4521.217...$
3. Emily's bank value: $15000 \times 1.035^4 = 17212.862...$
4. Difference: 17212.86 − 4521.22 = 12691.64. Answer: **£12692**

Challenge 6:

1. First 2 years multiplier: 1.05^2
2. Next 3 years multiplier: 0.98^3
3. Calculation: $200000 \times 1.05^2 \times 0.98^3$
4. $200000 \times 1.1025 \times 0.941192 = 207532.836$
5. Answer: **£207532.84**