

e Day maths activities for IGCSE and GCSE

IGCSE Math Revision · IGCSE and GCSE (Higher and Extended) · 7 February · Student sheet

Name _____

Class _____

Date _____

The starter is non-calculator. A calculator is needed for the main activity.

Starter (5 minutes)

1. Find 10% of £350.
2. £200 increases by 10%, and then by another 10%. What is it worth now?
3. Write down the multiplier for an increase of 4% and for a decrease of 15%.
4. Work out 2^{10} .

Main activity (35 minutes)

Task A: Compound interest

£5000 is invested at 3% a year compound interest. Give money to the nearest penny.

- a. Find the value after 1 year.
- b. Find the value after 6 years.
- c. How much interest is earned in the 6 years?
- d. How much more is this than 3% simple interest for 6 years?

Task B: Compound more often?

£1000 is invested for one year. The bank offers 12% a year.

- Find the value after one year if the 12% is added once, at the end of the year.
- Instead, 1% is added every month. Find the value after 12 months.
- Instead, $12\% \div 365$ is added every day. Find the value after 365 days.
- However often the interest is added, the value never goes above $1000 \times 2.71828...^{0.12}$.
Mathematicians call 2.71828... the number e . Work out $1000 \times e^{0.12}$, using the e^x key.

Task C: Depreciation and doubling

A car costs £18 000 new and loses 15% of its value each year.

- Find its value after 3 years.
- After how many whole years is the car first worth less than £5000?
- £1000 is invested at 6% a year compound interest. After how many whole years has it first doubled? Compare with $72 \div 6$.

Extension

- After a 4% increase, the price of a bike is £520. What was the price before the increase?
- Work out $(1 + 1/n)^n$ for $n = 1, 10$ and 100 , to 4 decimal places. What number are the answers getting close to?