Name	Date started	Target end date

WJEC GCSE Mathematics and Numeracy (Double Award) — Question Pack

Annual Equivalent Rate (AER) and comparing savings products. Sourced from legacy WJEC GCSE Mathematics-Numeracy Higher papers, organised for revision

REVISE
.wales

1.07 — AER — comparing savings products

Spec 1.8.4 — Unit 1 (calculator allowed)

Annual Equivalent Rate (AER) and comparing savings products. Sourced from legacy WJEC GCSE Mathematics-Numeracy Higher papers, organised for revision under the 2025 spec.

2025 SPECIFICATION

Estimated time for entire question pack: ~54 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (36 marks across 5 questions).*

*You are advised to **not** attempt to complete all of this in one sitting.*

ABOUT THIS QUESTION PACK

This is a **focused single-topic practice pack**, not a single mock paper. Questions are organised against the 2025 specification.

Questions are ordered chronologically by sitting, with custom-written and SAM questions at the end.

INSTRUCTIONS

Use black ink or black ball-point pen. Show all working — method marks are awarded for clear setup.

A calculator is allowed on every question in this pack (Unit 1 is the calculator-allowed paper).

AER — comparing savings products — what the new spec asks

WJEC GCSE Mathematics (first teaching 2025) · Unit 1: calculator-allowed.

AER definition 1.8.4

- AER = effective annual rate after compounding.
- Used to compare savings accounts on a like-for-like basis.
- Required by UK law on advertised products.

AER formula 1.8.4

- $\text{AER} = (1 + r)^k - 1$ where r is the periodic rate, k is the number of periods.
- Express as a percentage to 2 dp.
- For monthly: $k = 12$; quarterly: $k = 4$; half-yearly: $k = 2$.

Comparing products 1.8.4

- Compute the AER for each product, then pick the highest.
- Watch for nominal rates — they are not the AER.
- Sometimes you must compute the final balance and compare those instead.

Nominal vs AER 1.8.4

- A nominal annual rate is the periodic rate times k — ignores compounding.
- AER captures the actual compounded growth.
- AER ≥ nominal whenever interest is paid more than once per year.

Crib sheet »

AER — comparing savings products in one page

Quick-reference notes — revisit before each question. Don't use during the questions.

What AER measures

AER is the *equivalent annual* rate that compounding produces.

If a bank pays r per period k times a year, the AER is what a once-per-year-compounded account would have to pay to match it.

Formula

$$\text{AER} = (1 + r)^k - 1$$

r is the periodic rate (as a decimal), k is the number of periods per year.

Multiply by 100 for a percentage.

Monthly → AER

Monthly rate 0.26%: $r = 0.0026$.

AER = $(1.0026)^{12} - 1 = 0.03164\ldots$ = 3.16% to 2 dp.

Half-yearly example

£1000 grows to £1036 after a year of half-yearly interest.

$(1 + r)^2 = 1.036$, so $r = \sqrt{1.036} - 1$.

AER quotes the total annual growth: $1.036 - 1 = 3.6\%$.

Why banks use AER

So consumers can compare like-for-like.

A '5% nominal' account paying monthly is NOT the same as '5% AER'.

Common traps

- Forgetting to use the *periodic* rate, not the annual.
- Mixing percentage and decimal forms.
- Confusing nominal rate with AER.

Examiner only

7. Iestyn opened a savings account on 1 August 2017, investing £2800.
On 1 October 2017, he viewed his savings account online.
The table below shows all the transactions that had taken place since he opened the account.

Date	Details	Paid in (£)	Paid out (£)	Balance (£)
01/08/17	Account opened	2800.00		2800.00
31/08/17	Interest	14.00		2814.00
30/09/17	Interest	14.07		2828.07

(a) Calculate the nominal interest rate per annum. [3]

(b) Calculate the AER the account was paying.
Give your answer as a percentage, correct to 2 decimal places. [3]

Examiner only

9. *(a)* Circle either TRUE or FALSE for each statement given below. [2]

STATEMENT		
A nominal annual interest rate is **not** the same as an AER.	TRUE	FALSE
A savings account offers a nominal annual interest rate of 2%, with interest paid monthly. After a year, any investment will have increased in value by exactly 2%.	TRUE	FALSE
A savings account offers an AER of 2·4%, with interest paid monthly. The monthly interest rate the account offers will be exactly 0·2%.	TRUE	FALSE
£100 is invested in a savings account that pays monthly interest at a rate of 1%. There are no further transactions into or out of the account. The amount in the account after a year will be £112.	TRUE	FALSE

(b) Benjamin invests £1000 into an account that pays interest every 6 months.
He does not make any further payments into the account, and does not withdraw any money either.
After a year, there is £1036 in the account.

Calculate how much was in the account after 6 months.
Give your answer correct to the nearest penny.
You must show all your working. [4]

Examiner only

8. Cellan is planning to invest a sum of money into a savings account.

Cellan has picked up a leaflet describing an account offered by a local bank.
The details of the account are shown below.

Account name	Minimum term	Minimum investment	Interest paid	Nominal annual interest rate
The Gower	1 year	£1000	Every 6 months	4%

(a) Calculate the Annual Equivalent Rate (AER) that *The Gower* account is offering.
Give your answer as a percentage. [5]

AER = ... %

(b) Give one reason why banks use AER. [1]

Examiner only

(c) Cellan decides to invest his savings of £3000 into a 'Gower' savings account. He plans to save enough money to buy a motorbike costing £3200.

Calculate how much short of the £3200 Cellan would be after 1 year. [4]

Examiner only

6. Rebecca needs to save £10 000 for the deposit to buy a new house.
She has opened a savings account with Dragon Building Society. The account has a nominal annual rate of 5·4%, with interest paid on the last day of every month.

The formula for calculating the amount of money in the account at the end of every month is:

$$A = M\left(\frac{\left((1+r)^n - 1\right)(1+r)}{r}\right)$$

where:

A is the amount of money in the account at the end of every month,
M is the amount deposited into the account on the 1st day of each month,
r is the **monthly** interest rate written as a decimal,
n is the number of months the account has been open.

Rebecca opened the account on 1st August 2022, depositing £335 into the account.
She will deposit £335 into the account on the 1st day of every month.

(a) At the end of which month, and in which year, will Rebecca have the £10 000 she needs?
You must show all your working. [4]

Rebecca will have the £10 000 at the end of ..... in the year .....

Examiner only

(b) Calculate the AER for Rebecca's savings account.
Give your answer as a percentage, correct to 2 decimal places. [2]

(c) Rebecca's friend, Seren, opened a similar savings account with Dragon Building Society on 1st June 2020, depositing £300.
Seren then deposited £300 into the account on the 1st day of every month.
By 30th November 2021, Seren had £5636.84 in the account.

How much interest had Seren received?
Circle your answer. [1]

£236.84 £636.84 £836.84 £3836.84 £4136.84

Examiner only

7. Isaac and his sister Mari are both going to open savings accounts.

(a) Isaac decides to invest some of his savings in the Hereford Saver account.
Details of the account are shown below.

Hereford Saver account

Monthly interest rate 0·26%

Calculate the AER that the Hereford Saver account offers.
Give your answer as a percentage. [2]

Examiner only

(b) Mari invests £3000 in the Silver Plus savings account.
Details of the account are shown below.

Account name	Nominal annual rate	Interest paid
Silver Plus	2·48%	Quarterly

Mari does not withdraw any money or make any further payments into the account.
Mari closes the account after 10 years.

Calculate the percentage increase in the value of her investment.
You must show all your working. [5]