

Higher Numeracy Summer 2017 P1 Q1b

(b) The talent contest is held once a year.

Every year, the cost of putting on the talent contest increases by 10% of the previous year's cost.

In summer 2014 the cost was £6600.

Calculate the cost of putting on the summer 2017 talent contest.

You must show all your working.

[3]

Higher Numeracy Sam 1 P2 Q1

Carys decides to invest £380 in a savings account for 6 years.
The account pays a rate of 2.54% AER.

Will Carys have sufficient money in her savings account to be able to buy a motor scooter costing £460 in 6 years' time?
You must show all your working and give a reason for your answer.



[4]

Intermediate Numeracy Sample 2 P2 Q10

Sabrina sees the following advertisement.

Money Today

Borrow today - why wait until payday?

Costs 1% per day compound interest

Sabrina knows that she will be paid in 2 weeks' time.

She decides to borrow £400 for a period of 2 weeks.

How much will Sabrina have to pay back after 2 weeks?

Show all your working.

[3]

Higher Numeracy Summer 2017 P2 Q1

Mali's scooter depreciated (decreased) in value by 24% in the **first** year.

In all further years, her scooter depreciated by 13% of its previous year's value.

She originally paid £850 for her scooter.

Calculate the value of Mali's scooter after 7 years.

[3]

Higher Maths Nov 2018 P2 Q1a

A number is decreased by 12% of its value.

This is done 3 times, each time decreasing the previous value by 12%.

Circle the multiplier that you would use to find the value after the 3 decreases. [1]

$\times 0.36$

$\times 0.88^3$

$\times 0.12^3$

$\times 0.3^{12}$

$\times 0.3^{88}$

Higher Maths Summer 2018 P1 Q1b

(b) A number is increased by 4% of its value.

This is done 7 times, each time increasing the previous value by 4%.

Circle the multiplier that you would use to find the value after the 7 increases. [1]

$\times 1.04^7$

$\times 1.4^7$

$\times 0.04^7$

$\times 1.04^6$

$\times 1.28$

Higher Numeracy Nov 2016 P2 Q2

The price of softwood changes each year.

The price has increased by 6% per annum for each of the last **5 years**.

Before this, the price had decreased by 2% per annum.

Seven years ago the price of softwood was £34 per m³.

Calculate the current price of softwood.

[3]

Higher Numeracy Sample 2 P2 Q3

Sabrina sees the following advertisement.

Money Today

Borrow today - why wait until payday?

Costs 1% per day compound interest

Sabrina knows that she will be paid in 2 weeks' time.

She decides to borrow £400 for a period of 2 weeks.

How much will Sabrina have to pay back after 2 weeks?

Show all your working.

[3]

Higher Numeracy Summer 2019 P2 Q3b

(b) Delyth invested £500 in a saver bank account 20 years ago.

She did not withdraw money or make any other payments into this account.

The bank paid 2.2% compound interest per annum during the first 5 years.

Compound interest at 1.6% per annum was paid for the remaining 15 years.

Delyth closes the account after 20 years.

How much money should she receive?

[4]

Higher Numeracy Summer 2018 P1 Q4a

- (a) Kingsley invests £3000 in an account that pays 2% compound interest per annum. He does not make any further payments into his account. He does not withdraw any money from his account.

How much will Kingsley have in his account after two years?

[3]

Higher Numeracy Nov 2017 P2 Q5

Teleri needs £8000 to pay a deposit for a new house.
She already has £7500.

Teleri decides to invest the £7500 in a bank account that pays interest at a rate of 0.31% every month.

She does not plan to make any further payments into this account.

Calculate the number of months Teleri will need to wait until she has enough money in the account to pay the deposit of £8000. [3]

Higher Numeracy Summer 2019 P2 Q6

Simon has some money to invest in a savings account.

Two banks have sent him details of their *Special 1-Year Saver* accounts.

He plans to make only one payment into the account and not withdraw any money during the year.

Morgannwg Bank

0.41% interest paid every
month

Banc Gwynedd

Nominal annual rate of 4.92 %
Interest paid every 3 months

What is the difference between the AERs that the two accounts are offering?
Give your answer as a percentage correct to 2 decimal places.

[5]

Higher Numeracy Nov 2017 P2 Q7

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]

Higher Numeracy Nov 2018 P1 Q8 (Note: This is a paper 1 question so no calculator)

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 |
|------------------|--------------|--------------------|----------------|------------------------------|
| <i>The Gower</i> | 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]

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

(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]

Higher Numeracy Summer 2018 P2 Q9

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]

Higher Numeracy Summer 2017 P2 Q10

10. Fatima wants to invest some money in a savings account. She has picked up leaflets from two building societies advertising their high-interest savings accounts.

'Bannau' account

Nominal annual rate of
3.85%

Interest paid monthly

'Eryri' account

Nominal annual rate of
3.86%

Interest paid every
6 months

By comparing AERs, which account will offer Fatima the better interest rate on her investment?
You must show all your working. [5]

Higher Numeracy Nov 2016 P2 Q10

10. Huw wants to open a savings account.
Here are the details of savings accounts advertised by two local Welsh banks.

| |
|---|
| <p><u>Banc Padarn</u></p> <p>Nominal interest rate of 1.98% per annum</p> <p>Interest paid monthly</p> |
|---|

| |
|--|
| <p><u>Banc Tello</u></p> <p>AER 1.99%</p> |
|--|

(a) (i) What is 1.98% as a decimal?
Circle your answer. [1]

- 0.0198 0.198 1.098 1.98 98.0

(ii) Which of these two banks should Huw choose in order to gain the most interest per annum?
You must show your working. [4]

(b) Interest earned from savings is taxable, according to the table below.

| Tax rates for savings | |
|-----------------------|---|
| Basic rate taxpayer | 20% on annual interest earned above £1000 |
| Higher rate taxpayer | 40% on annual interest earned above £500 |

Matthew is a higher rate taxpayer.
Therefore, any savings interest he earns over £500 within a year is taxed at 40%.

On 1st May 2016, he invested £150 000 in a savings account that pays interest at a rate of 1.98% **per annum**.

(i) What is this interest rate **per month**, written as a decimal?
Circle your answer. [1]

- 0.0033 0.00495 0.00165 0.0099 0.0066

Savings interest is added at the end of every month.

(ii) Calculate the date when the interest that Matthew earned went above his annual tax-free limit, and the amount of tax he would have to pay on this interest if he had closed the account on this date. [5]

Numeracy Higher Sample 2 P2 Q11

11. Dragon Nation Bank is advertising a savings account.

| Account | Nominal interest rate | AER Annual Equivalent Rate, correct to 2 decimal places |
|--------------|---------------------------|--|
| Dragon Saver | 7.6% p.a., paid quarterly | % |

(a) Complete the AER entry in the table.

[4]

(b) Explain why AER is used by the bank.

[1]

Higher Numeracy Summer 2018 P1 Q11

During a chemistry experiment, it was found that a particle lost $\frac{3}{4}$ of its mass every second.

The initial mass of the particle was 160mg.

(a) Calculate the mass of the particle after 4 seconds.
Circle your answer.

[1]

2.5 mg 0.15625 mg 40 mg 0.625 mg 0.875 mg

(b) Write down a formula for the mass m , in milligrams, of the particle after t seconds.

[3]

Numeracy Higher Sample 2 P2 Q11

11. Dragon Nation Bank is advertising a savings account.

| Account | Nominal interest rate | AER Annual Equivalent Rate, correct to 2 decimal places |
|--------------|---------------------------|--|
| Dragon Saver | 7.6% p.a., paid quarterly | % |

(a) Complete the AER entry in the table.

[4]

(b) Explain why AER is used by the bank.

[1]

Higher Numeracy Sample 2 P1 Q14

14. Dafydd is an engineer working at the Welsh Science Research Centre.

During an experiment, Dafydd knows that a certain chemical particle loses half of its mass every second.

The initial mass of the particle is 80 grams.

(a) The mass of the particle after 8 seconds is

0.15625 g 0.3125 g 0.625 g 5 g 10 g

[1]

(b) Dafydd needs to write down a formula for finding the final mass, f grams, of the particle after t seconds.

What formula should he write?

[3]

(c) Comment on the mass of the particle after a long time, such as a whole day, has passed.

[1]