

GCSE Mathematics



GCSE Mathematics - Numeracy



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- will build on and progress from the levels of numeracy expected at the end of Key Stage 3 through the LNF
- assess the mathematics that learners will need in their everyday lives, in the world of work and in other general curriculum areas

GCSE Mathematics

- will extend to aspects of mathematical thinking needed for progression to scientific, technical or further mathematical study

Why two GCSEs?

In response to recommendation 19 of the Review of Qualifications for 14-19 year olds

Reasons given for the recommendations included

The levels of numeracy demonstrated by many learners are not high enough

GCSEs in Mathematics are widely expected to be, but are not, reliable indicators of appropriate levels of Numeracy

Some employers and universities consider that grade C, or even above, does not guarantee sufficient numeracy

Structure of new GCSEs

3 Tiers

Higher	A*	A	B	C
Intermediate	B	C	D	E
Foundation	D	E	F	G

Assessment

GCSE Numeracy

Two exams

- Unit 1 Non-Calculator
- Unit 2 Calculator

GCSE Mathematics

Two exams

- Unit 1 Non-Calculator
- Unit 2 Calculator

Higher and Intermediate exams $1\frac{3}{4}$ hours

No coursework or controlled assessments

Exam dates

November 2016

- GCSE Numeracy

June 2017

- GCSE Numeracy
- GCSE Mathematics

Preparation for two GCSEs

Pupils will have 7 Maths lessons a fortnight

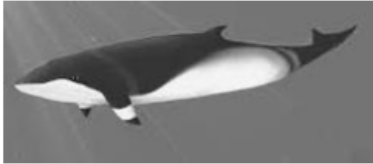
Scheme of work has been developed by ERW and used by schools in Neath Port Talbot

Specific lessons used to extend numerical understanding

A wealth of resources have been produced by the school, exam board and Local Authority

1. A magazine article states:

Each year one third of the world's whale population migrates around the North West coast of Scotland.



A Minke whale is sighted by a number of people in a sea area near North Minch.

In attempting to locate the Minke whale, the following details are known.

- The distance from Muir of Ord to Dingwall is 10 miles.
 - The whale is
 - equidistant from Stornoway and Ullapool,
 - within 30 miles of Portree,
 - further than 10 miles off shore.
- (a) Use the map on the next page to indicate possible locations of the sighting of the Minke whale.
You must show all your constructions and working. [5]
- (b) Complete the following sentence to give the range of possible bearings of the Minke whale from Stornoway. [2]

The bearing of the Minke whale from Stornoway is between

..... ° and °.



9. The *Hafod Hotel* swimming pool is currently in need of improvement.

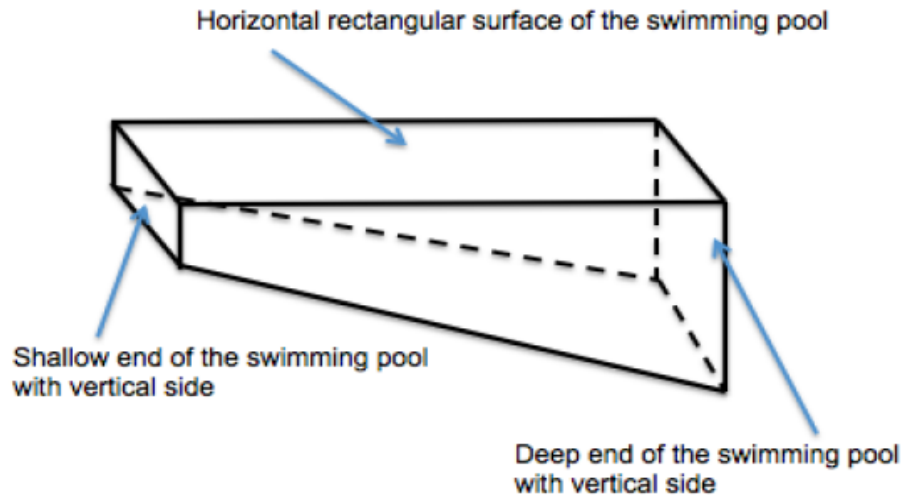


Diagram not drawn to scale

- (a) The pool is 1 metre deep at the shallow end, dropping to 3 metres deep at the other end.
The width of the pool is 10 metres and the length is 20 metres.
The length of the sloping floor of the pool is $20\sqrt{1}$ metres.

The four walls and the floor within the pool are to be covered in tiles.
This will cost £20 per m^2 .

The labour cost of fixing the tiles is £150 per day.
It should take 6 days to tile the pool.

Calculate how much it will cost the hotel to tile the swimming pool. [8]

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8. Hari lives in Chester.
He wanted to catch the ferry to Ireland, leaving Holyhead at 12:05 p.m.
Passengers must board the ferry at least 30 minutes before sailing time.

In planning his journey, he allowed himself 20 minutes to travel from the station at Holyhead to the ferry.

He wanted to catch the latest possible train from Chester to be sure of arriving on board the ferry in time.

Part of the train timetable he used is shown below.

Chester (depart)	07:19	08:55	09:58	10:24
Holyhead (arrival)	09:22	10:35	11:22	12:23

Hari caught the train he wanted, and the train arrived at Holyhead station on time.
The time to travel from the station to the ferry took a total of 25 minutes.

Calculate the total time taken between Hari departing from Chester and arriving at the ferry.

[4]

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11. Imran works for a company called *Derwen Insurance*. His gross salary is £47 840 per year.

Below are extracts from HM Revenue and Customs and details of Imran's company pension scheme:

National Insurance contributions	
•	If you earn more than £153 a week and up to £805 a week, you pay 12% of the amount you earn between £153 and £805
•	If you earn more than £805 a week, you also pay 2% of all your earnings over £805

Source: HMRC 2014

Income tax threshold and rates	
Income tax threshold	£10,000 per year
Basic tax rate	20% on annual earnings above income tax threshold and up to £31,865
Higher tax rate	40% on annual earnings from £31,866 to £150,000
Additional tax rate	45% on annual earnings above £150,000

Source: HMRC 2014

<i>Derwen Insurance</i> Pension Scheme			
Gross salary	Contribution rate	Gross salary	Contribution rate
Up to £13 500	5.5%	£60 001 to £85 000	9.9%
£13 501 to £21 000	5.8%	£85 001 to £100 000	10.5%
£21 001 to £34 000	6.5%	£100 001 to £150 000	11.4%
£34 001 to £43 000	6.8%	£150 001 or more	12.5%
£43 001 to £60 000	8.5%		

How can you help

- Ask how the maths is going
- Test their knowledge of facts and formulas contained within their books
- Ensure they frequently read through class notes
- Check they are presenting work to a high standard
- Encourage them to read questions carefully and show all workings
- Encourage them to speak to their teacher if they are having any difficulties

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Mr Sayce

Mrs Hughes

Mrs Howells