

***MATHEMATICS/NUMERACY***  
***information***  
***Parents Evening 2022***



Ysgol Gymunedol Llangatwg  
Llangatwg Community School

# ***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

Entries **(for November)**



**Higher Mathematics & Numeracy -**  
Mr Miah's & Mrs Ross' class

**Intermediate Mathematics & Numeracy –**  
Miss Nicholas', Mrs Hardway's and Mr Sayce's class

**Foundation Mathematics & Numeracy -**  
Mrs Collins' class



## Entries

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

## ***Preparation for two GCSEs***

- Pupils will have 7 Maths lessons a fortnight
- After school sessions on Thursday
- Saturday sessions (TBC)
- Specific lessons used to extend numerical understanding
- A wealth of resources have been produced by the school, exam board and Local Authority

## ***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
- Check to see the weekly past papers are fully completed

## ***Tips for revision***

- 1.** Before you start revising, get all your notes sorted, and draw up a list of all the topics you need to cover.
- 2.** Plan exactly when you are going to revise, and be strict with yourself.
- 3.** Give yourself little treats and things to look forward to.
- 4.** Don't just read through the textbook or your exercise book.
- 5.** Use the internet. Corbett maths is full of resources and videos.
- 6.** Don't just practice the topics you can do.

## ***Tips for revision***

- 7.** Make sure you ask for help
- 8.** Practice doing questions under exam conditions
- 9.** Practice using your **own** calculator
- 10.** If it works for you, try revising with a friend for a bit of the time.
- 11.** Read it, say it, do it
- 12.** Practice tables and learn number facts



# Homework



Candidate Name	Centre Number				Candidate Number			
					0			



GCSE

**MATHEMATICS**  
**UNIT 2: CALCULATOR-ALLOWED**  
**INTERMEDIATE TIER**

**2<sup>nd</sup> SPECIMEN PAPER SUMMER 2017**

**1 HOUR 45 MINUTES**

## ADDITIONAL MATERIALS

A calculator will be required for this paper.

A ruler, protractor and a pair of compasses may be required.

## INSTRUCTIONS TO CANDIDATES

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided in this booklet.

Take  $\pi$  as 3.14 or use the  $\pi$  button on your calculator.

## INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	4	
2.	6	
3.	3	
4.	4	
5.	6	
6.	4	
7.	6	
8.	3	
9.	6	
10.	5	
11.	2	
12.	4	
13.	6	
14.	3	
15.	6	

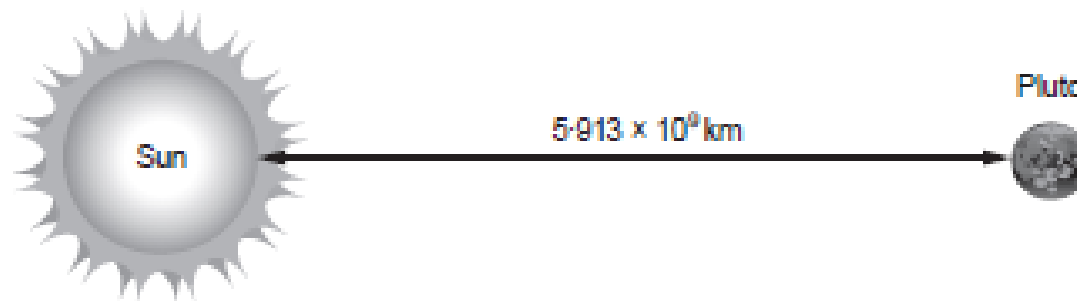
Learners will complete past papers on a weekly basis

# ***Tackling Past Paper questions***

- Allow adequate time to complete the weekly papers
- Don't rush it the morning before it is due in
- Read each question twice
- Highlight key points
- Put a star by any questions you are unable to do and seek help before the paper is due in
- After the paper is marked make a note on how to avoid any mistakes with a particular question

10. Astronomers use astronomical units (AU) to describe distances in our solar system.  
The distance between the Sun and the Earth is 1 AU.  
1 AU is  $1.496 \times 10^8$  km, correct to 4 significant figures.

(a) The distance of Pluto from the Sun is  $5.913 \times 10^9$  km, correct to 4 significant figures.



*Diagram not drawn to scale*

Siôn says that the distance of Pluto from the Sun is less than 50 AU.

Using suitable approximations, estimate the distance of Pluto from the Sun, in AU, to show that Siôn is correct.

You must show all your working.

[2]

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14. The diagram shows the simplified model of part of an engine. It shows a belt which runs around three circular cogs. The engine rotates Cog 1. Cog 1 rotates the belt, which then makes Cogs 2 and 3 rotate.

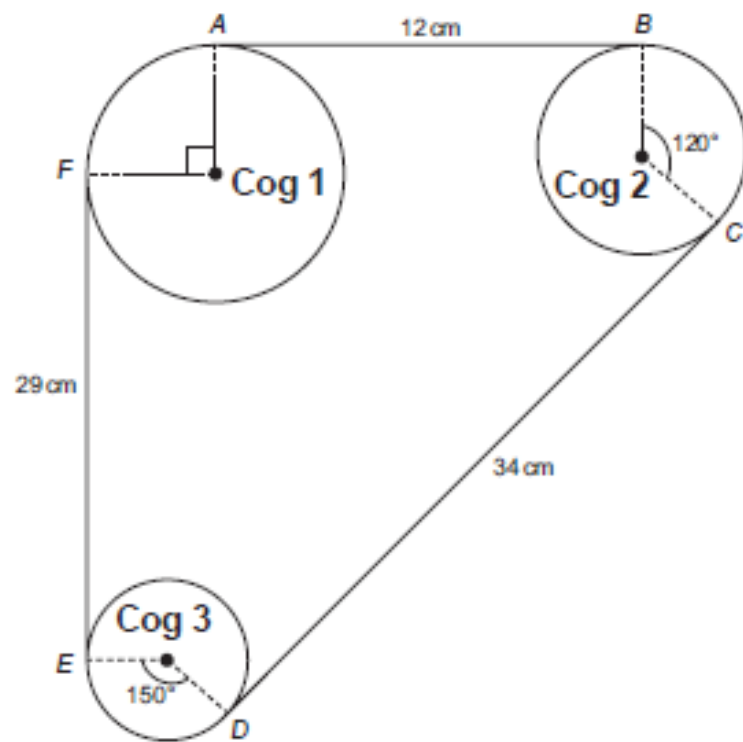


Diagram not drawn to scale

$AB$ ,  $CD$  and  $EF$  are straight sections of the belt.

$AB = 12$  cm,  $CD = 34$  cm and  $EF = 29$  cm.

The belt bends around the outer edges of the circular cogs, represented by the arcs  $BC$ ,  $DE$  and  $FA$ .

The dimensions of the cogs are:

- radius of Cog 1 = 8 cm
- radius of Cog 2 = 4.5 cm
- radius of Cog 3 = 3 cm

- (a) What is the length of arc  $AF$  in terms of  $\pi$ ?  
Circle your answer.

[1]

$2\pi$

$3\pi$

$6\pi$

$4\pi$

$\frac{3\pi}{2}$



5. Hot water is often stored in cylinders.  
The water in the cylinder is heated for use in the shower.



A plumbing engineer wants to calculate how long a shower can be used continuously before the water runs cold. He uses the following formulae:

$$C = \frac{H(X - M)}{M - Y} \quad \text{and} \quad T = \frac{C + H}{F}$$

Where:

$C$  is the additional volume of water that feeds into the cylinder, in litres.

$H$  is the volume of hot water that the cylinder holds, in litres.

$M$  is the temperature of the water in the shower, in °C.

$X$  is the temperature of the hot water in the cylinder, in °C.

$Y$  is the temperature of the cold water that feeds into the cylinder, in °C.

$T$  is the time spent using the shower before the water runs cold, in minutes.

$F$  is the rate of flow of water in the shower, in litres per minute.

Daisy's cylinder holds 300 litres of hot water.

The temperature of the hot water in her cylinder is 60°C.

The temperature of the cold water that feeds into Daisy's cylinder is 8°C.

The water in Daisy's shower is set at a temperature of 32°C.

Her shower has a rate of flow of 26 litres per minute.



Use the formulae to calculate

- the additional volume of water that feeds into Daisy's cylinder, in litres,
- the number of minutes Daisy's shower will run continuously before the water runs cold.

[5]

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11. A sensor can detect any movement up to a distance of 6.5 m.

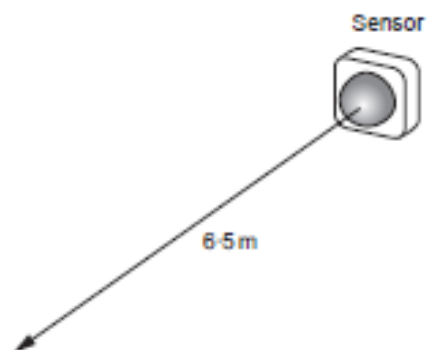


Diagram not drawn to scale

(a) A storeroom is in the shape of a cuboid, as shown below.

The sensor is placed at  $A$ , so that

- it is aimed directly at  $B$ , where  $BD = 2$  m,
- the front of the sensor is 20 cm from  $A$  along the line  $AB$ .

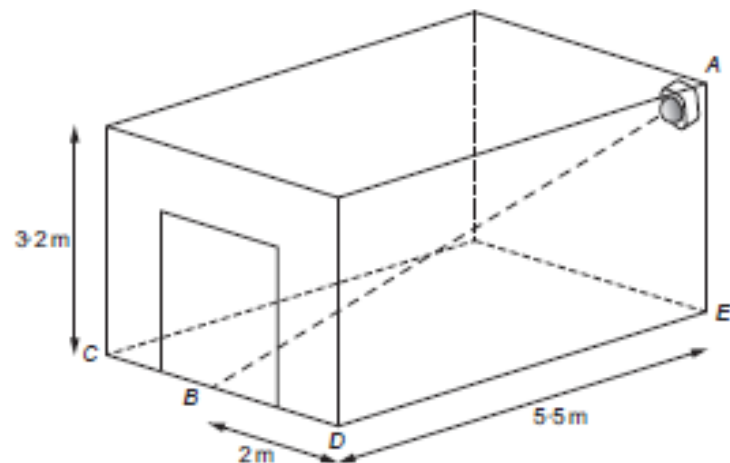


Diagram not drawn to scale

Will the sensor be able to detect movement at  $B$ ?

You must show all your working.

[5]

