

GCSE

# Mathematics: Calculator

Paper 1

Specification EDEXCEL A

Name

**Time allowed**

- 30 minutes.

**For this paper you must have**

- A ballpoint pen with black ink.
- A ruler with millimetre measurements.
- A scientific calculator.

**Instructions**

- Do all rough work in this question booklet.
- Answer **all** the questions.
- You **must** show your working for all questions.

You should give non-exact answers correct to 3 significant figures unless another degree of accuracy is specified in the question or is clearly appropriate.

The maximum mark for this paper is 40.

Question	Mark
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
<b>TOTAL</b>	

**Grade Boundaries**

A\* **34**  
A **28**  
B **22**  
C **16**  
D **10**

1. Use your calculator to work out

(a)  $4.74 \times 9.35$

.....  
\_\_\_\_\_ (1 mark)

(b)  $3.8 \times 10^4 + 1.4 \times 10^5$

.....  
\_\_\_\_\_ (1 mark)

2. Charlie wants to find out how much time people spend playing sport.  
He uses this question on a questionnaire.

How much time do you spend playing sport? <input type="checkbox"/> 0 - 1 hours <input type="checkbox"/> 1 - 2 hours <input type="checkbox"/> 3 - 4 hours
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(a) Write down two things that are wrong with this question.

1 .....

.....

2 .....

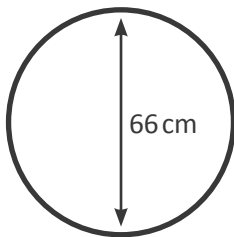
.....

(2 marks)

(b) Design a better question for Charlie's questionnaire to find out how much time people spend playing sport.

..... (2 marks)

3. Jason has a bicycle  
Each wheel has a diameter of 66 cm.



On a bike ride the wheel turns 2611 times.

Calculate the distance Jason travelled on the bike ride.  
Give your answer in kilometres to three significant figures.

..... km (4 marks)

4. A supermarket sells three brands of crisps.  
The table shows how much salt is in each packet, for each brand.

Brand	Weight of packet (g)	Mass of salt (g)
A	35	1.1
B	72	1.7
C	200	4.0

Work out which brand contains the **lowest** proportion of salt.

Brand ..... (3 marks)

Turn over for Question 5 ►

5. (a)  $1\text{m}^3$  of *Substance A* has a weight of 1200g.

15% of *Substance A* is water.

The rest of *Substance A* is made up of grit, stone and cement in the ratio 2:3:7.

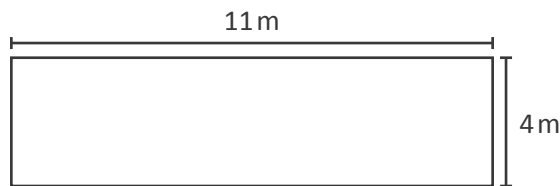
Calculate the weight, in grams, of stone in  $1\text{m}^3$  of *Substance A*.

..... g

(3 marks)

(b)  $1\text{m}^3$  of *Substance A* costs £2.15.

A construction company is being paid by a developer to fill in the area shown to a depth of 3 metres using *Substance A*.



Calculate the cost to the company.

£ .....

(2 marks)

(c) The company needs to charge the developer 65% more than the cost of construction in order to make a profit.

Calculate how much the company charges the developer.

£ .....

(2 marks)

6. Three graphs are shown below.

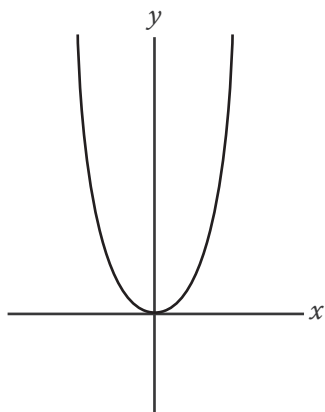


Fig. 1

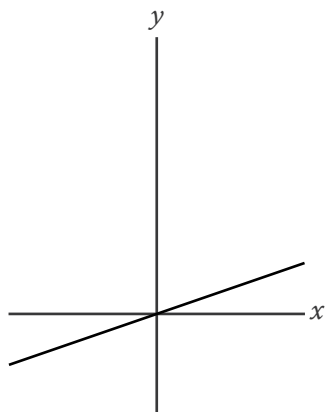


Fig. 2

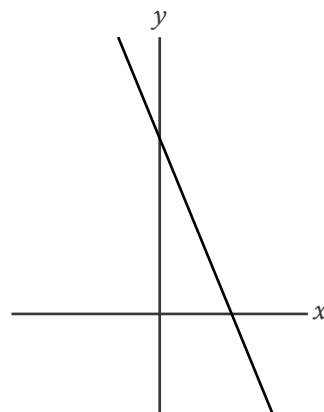


Fig. 3

Each diagram above shows part of a curve or line.

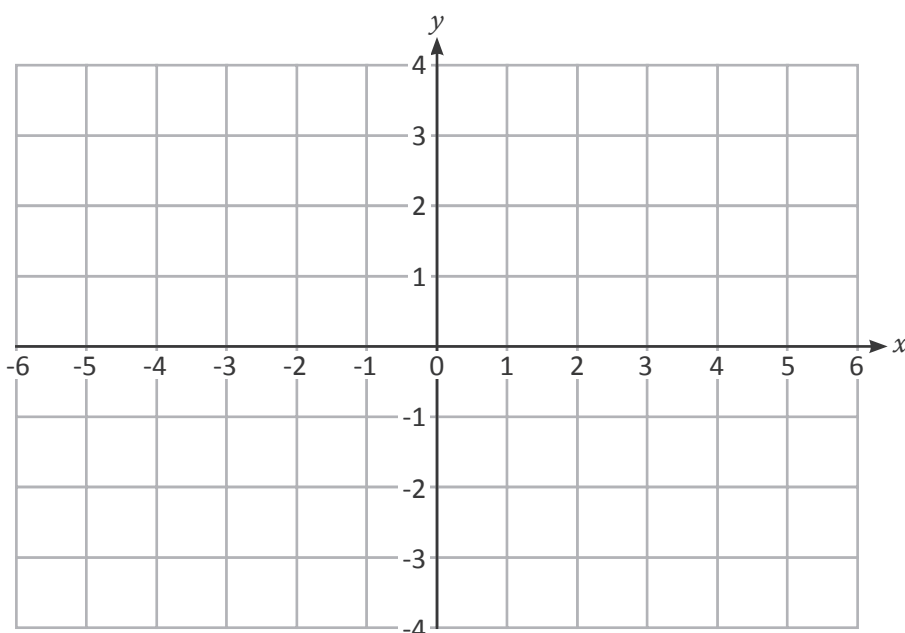
- (a) Which diagram represents the equation  $y = 6 - 2x$ ?  
 Fig. 1                       Fig. 2                       Fig. 3                      (1 mark)

- (b) Which diagram represents a quadratic equation?  
 Fig. 1                       Fig. 2                       Fig. 3                      (1 mark)

- (c) (i) How many times do the equations represented by Fig. 1 and Fig. 2 intercept?  
 ..... (1 mark)

- (ii) Write down one of these coordinates of interception.  
 ( ..... , ..... ) (1 mark)

- (d) On the axes below, draw a line with equation  $y = 3x - 3$ .



(2 marks)

Turn over for Question 7 ►

7. Estimate the value of  $\frac{6.03 \times 9.87}{2.902}$

.....  
\_\_\_\_\_ (2 marks)

8.  $t$  is a negative constant such that  $(3t)^2 + 3 = 39$ .

Work out the value of  $t$ .

.....  
\_\_\_\_\_  $t =$  ..... (3 marks)

9. The rule for finding the next term in a sequence is

Add  $b$  then multiply by 3

The second term is 15.

The third term is 51.

Work out the first term of the sequence.

.....  
\_\_\_\_\_ First Term ..... (4 marks)

**10.(a)** Show that  $(2x + 4)^2 \equiv 4x^2 + 16x + 16$ .

\_\_\_\_\_ (1 mark)

**(b)** Find the single solution of the simultaneous equations

$$y = 2x + 4$$
$$y^2 = 4x^2 + 12x.$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

\_\_\_\_\_ (4 marks)

**END OF QUESTIONS**



There are no questions printed on this page