

General Certificate of Secondary Education

GCSE AQA Mathematics (Grade 9-1) Foundation Tier

Centre name				
Centre number				
Candidate number				

Practice Set 2 Paper 2: Calculator

Time allowed: 1 hour 30 minutes

Surname
Other names
Candidate signature

In addition to this paper you should have:

- A pen, pencil and eraser.
- A ruler.
- A protractor.
- A pair of compasses.
- A calculator.



Instructions to candidates

- Write your name and other details in the spaces provided above.
- Answer all questions in the spaces provided.
- In calculations show clearly how you worked out your answers.
- Calculators may be used — if your calculator doesn't have a π button, take the value of π to be 3.142

Information for candidates

- There are 80 marks available for this paper.
- The marks available are given in brackets at the end of each question.
- You may get marks for method, even if your answer is incorrect.

Advice to candidates

- Work steadily through the paper.
- Don't spend too long on one question.
- If you have time at the end, go back and check your answers.

For examiner's use			
Q	Mark	Q	Mark
1		14	
2		15	
3		16	
4		17	
5		18	
6		19	
7		20	
8		21	
9		22	
10		23	
11		24	
12		25	
13			
Total			

Answer ALL the questions.

Write your answers in the spaces provided.

You must show all of your working.

- 1 (a) Round 173 287 to the nearest ten thousand. Circle your answer.

170 000

173 000

180 000

183 000

[1]

- (b) Round 19 850 to 2 significant figures. Circle your answer.

19 000

19 900

20 000

21 000

[1]

[Total 2 marks]

- 2 Circle the fraction which is equivalent to 35%.

$$\frac{35}{1000}$$

$$\frac{35}{50}$$

$$\frac{7}{25}$$

$$\frac{7}{20}$$

[Total 1 mark]

- 3 A pencil case contains red, blue and yellow crayons only.
A crayon is picked at random from the pencil case.
The table shows the probabilities of taking a red crayon or a yellow crayon.

Colour	Red	Blue	Yellow
Probability	0.2		0.35

- (a) What is the probability of taking a blue crayon? Circle your answer.

0.45

0.55

0.65

0.8

[1]

- (b) There are 40 crayons in the pencil case altogether.
In total, how many are either yellow or red?

.....
[2]

[Total 3 marks]

4 Use each of the following digits exactly once.

5 8 3 7 6 1

(a) What is the smallest number you can make?

.....
[1]

(b) What is the largest even number you can make?

.....
[1]

[Total 2 marks]

5 Simplify the following ratios:

(a) 8:36

.....
[1]

(b) 3 litres : 250 ml

.....
[2]

[Total 3 marks]

6 Jonah, Katie and Tim have some British coins in their pockets.

- (a) Jonah has 2 different coins.
His total amount, in pence, is a factor of 99 and is greater than 4.
Which coins does he have?

..... and [2]

- (b) Katie has 4 different coins.
Her total amount, in pence, is a multiple of 20 and is greater than 300.
Which coins does she have?

.....,, and [2]

- (c) Tim has 3 different coins.
His total amount, in pence, is a prime number less than 15.
Which coins does he have?

....., and [2]

[Total 6 marks]

- 7 The favourite sports of the children in Class 10B are shown on the tally chart and pictogram below.

Leave blank

Favourite Sport	Tally	Frequency
Rugby		
Tennis		16
Football		8

Favourite Sport	Number of Children
Rugby	⊖ ⊖ ⊖
Tennis	
Football	⊖ ⊖

Key: ⊖ represents children

Fill in all of the missing information in the tables above.

[Total 3 marks]

8 Solve $2x + 3 = 8$

Leave
blank

$x = \dots\dots\dots$

[Total 2 marks]

- 9 Gemma is saving up to buy a dress which costs £36.50.
She has already saved £13.10.
She is going to add £4.80 to her savings every Monday,
and starts by adding £4.80 on Monday 17th May.

On what date will she have saved enough to buy the dress? Show all of your working.

$\dots\dots\dots$

[Total 4 marks]

Leave
blank

10 Victoria has made a patchwork quilt by sewing 900 squares of fabric together.

(a) $\frac{5}{18}$ of the squares have a pink background.

How many squares have a pink background? Circle your answer.

50

150

250

350

[1]

(b) 129 of the squares have flowers on them.

What percentage of the squares have flowers on them?

Give your answer correct to 1 decimal place.

..... %
[2]

(c) $\frac{2}{5}$ of the squares have spots on them.

Of the squares which have spots on them, $\frac{3}{8}$ of these have a yellow background.

What fraction of the squares are spotty with a yellow background?

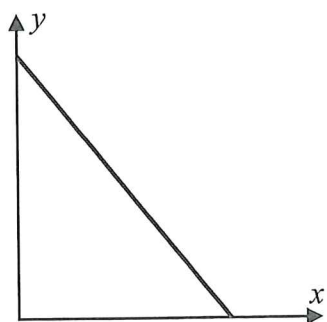
Give your answer in its simplest form.

.....
[2]

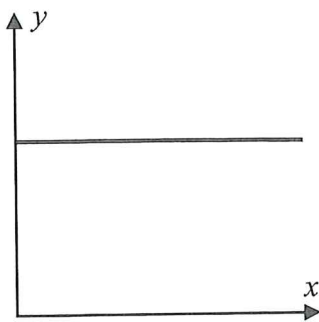
[Total 5 marks]

11 Some graphs are drawn below.

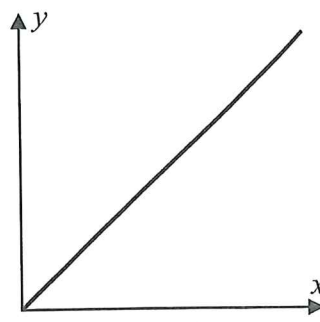
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Graph A



Graph B



Graph C

(a) Which graph shows that x and y are directly proportional? Tick a box.

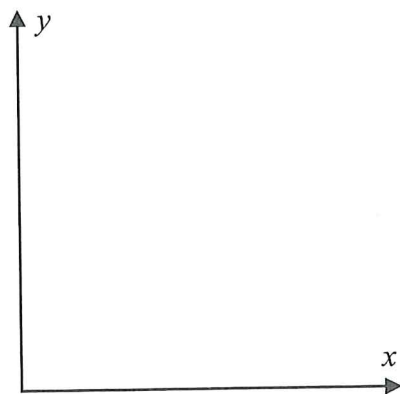
Graph A

Graph B

Graph C

[1]

(b) Sketch a graph to show “ x is inversely proportional to y ”.



[1]

[Total 2 marks]

12 Evaluate $2.6 \times 10^{-2} \times 3.4 \times 10^4$. Give your answer in the following forms:

(a) as an ordinary number,

.....
[1]

(b) in standard form.

.....
[1]

[Total 2 marks]

Leave blank

13 Maria has a coin. She tosses it 8 times and records her results in this table.

Result	Heads	Tails
Frequency	2	6

(a) What is the relative frequency of getting heads? Circle your answer.

0.2 0.25 0.33 0.75

[1]

(b) Maria claims that her coin must be biased.
Explain why she might think this.

.....
.....

[1]

(c) Do you think that Maria has enough evidence to be confident that her coin is biased?
Tick a box.

Yes No

Explain your answer.

.....
.....

[1]

[Total 3 marks]

14 The length of a rectangle is 2.5 times longer than its width.
The perimeter of the rectangle is 52.5 cm.

What is the width of the rectangle?

..... cm

[Total 3 marks]

Leave
blank

15 Dida is going on holiday to Florida and changes £450 into U.S. dollars (\$).
The current conversion rate is £1 = \$1.43

(a) How much money will she get in dollars?

\$
[1]

While in Florida, she buys two t-shirts that each cost \$8.60
and a pair of sunglasses that cost \$9.20.

(b) What is the total cost of the t-shirts and sunglasses in pounds?
Give your answer to the nearest penny.

£
[2]

[Total 3 marks]

16 A sequence is generated using the rule “add four to the previous term”.
The 2nd term is 14.

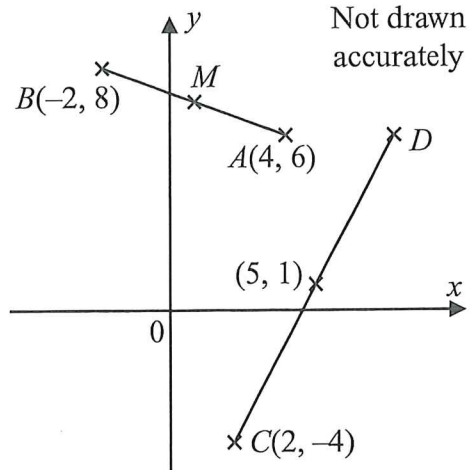
What is the n^{th} term of the sequence?

.....

[Total 2 marks]

Leave blank

- 17 The grid shows two line segments — AB and CD .
Point A has coordinates $(4, 6)$.
Point B has coordinates $(-2, 8)$.
Point C has coordinates $(2, -4)$.



- (a) M is the midpoint of AB .
What are the coordinates of point M ?

.....
[2]

- (b) The midpoint of CD is $(5, 1)$.
What are the coordinates of point D ?

.....
[2]

[Total 4 marks]

- 18 The area of a circle is found to be $16\pi \text{ cm}^2$.
Calculate the circumference of the circle. Give your answer in terms of π .

..... cm
[Total 3 marks]

19 Five numbers are represented by these algebraic expressions:

$$n \quad n + 1 \quad n + 2 \quad n + 3 \quad n + 9$$

Find the following in terms of n :

(a) the median,

.....
[1]

(b) the mean.

.....
[3]

[Total 4 marks]

20 (a) Fully factorise $12x^2 + 3x$

.....
[2]

(b) Fully factorise $x^2 + 11x + 24$

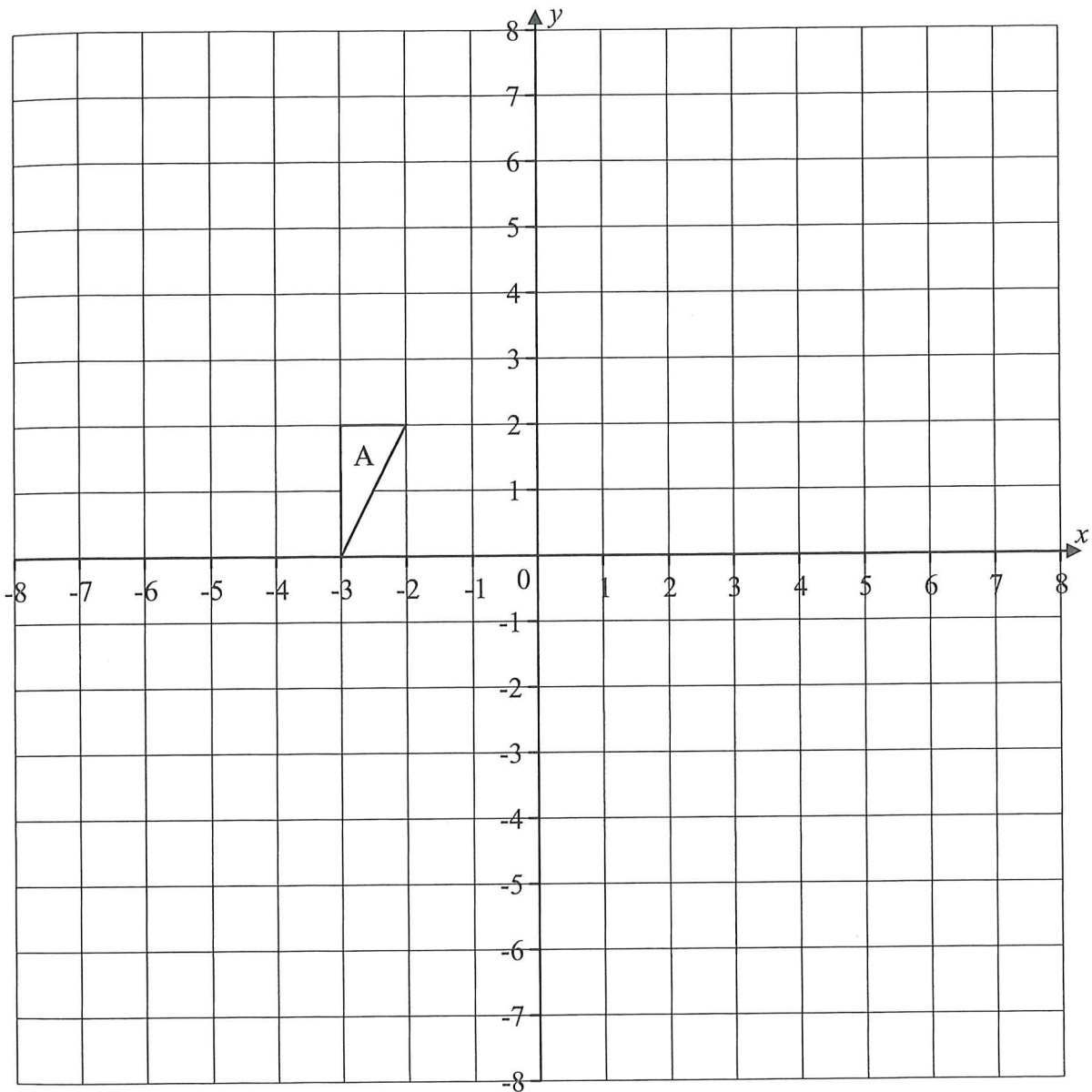
.....
[2]

[Total 4 marks]

*Leave
blank*

- 21 Enlarge triangle A using a scale factor of 3 and $(-7, 1)$ as the centre of enlargement. Label the transformed shape B.

Leave blank



[Total 2 marks]

- 22 The number n expressed as a product of prime factors is $2^3 \times 3^2 \times 5$.

What is n^2 as a product of prime factors? Circle your answer.

$$2^4 \times 3^2 \times 5$$

$$2^4 \times 3^3 \times 5^2$$

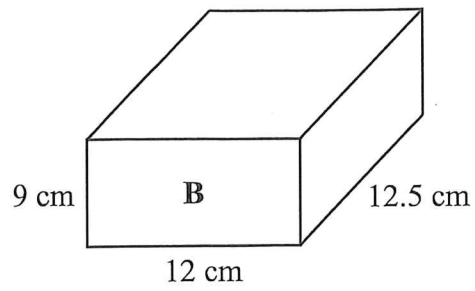
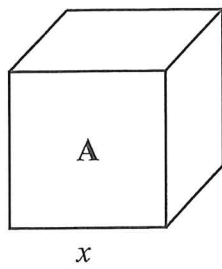
$$2^6 \times 3^4 \times 5^2$$

$$4^6 \times 9^4 \times 25^2$$

[Total 1 mark]

23 Cube A and cuboid B are shown below.

Leave
blank



Not drawn
accurately

Volume of cube A : volume of cuboid B = 3 : 2

What is the side length, x , of cube A?
Give your answer to two decimal places.

$x = \dots\dots\dots$ cm

[Total 5 marks]

24 Xander has shoe size x and Yan has shoe size y .

A: The sum of their shoe sizes is 17.

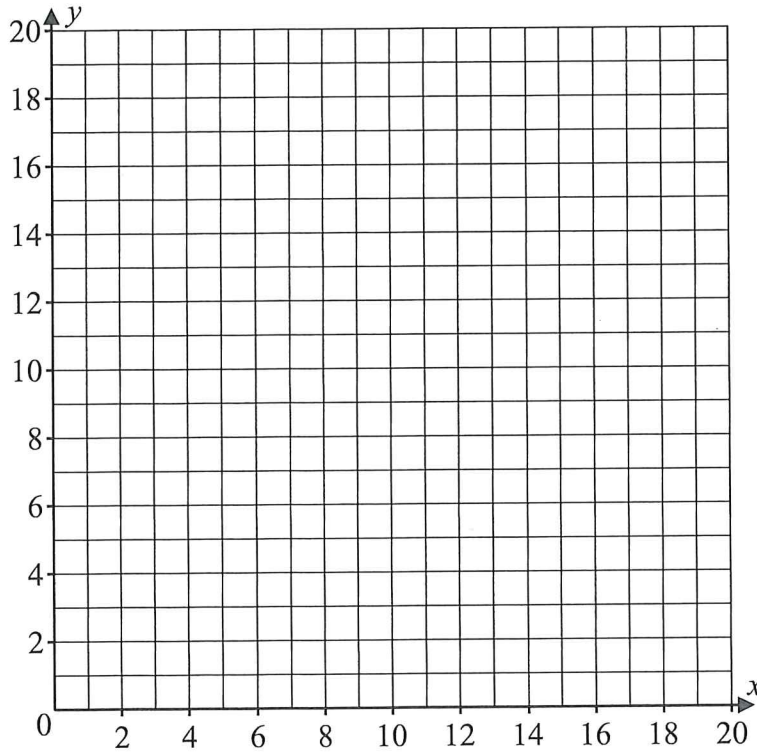
B: Yan has a larger shoe size than Xander, and the difference in their shoe sizes is 6.

(a) Write, in terms of x and y , two equations to show the information given in points A and B.

A:

B: [2]

(b) On the axes below, draw graphs to show the two equations.



[2]

(c) By using your graphs, find Xander's and Yan's shoe sizes.

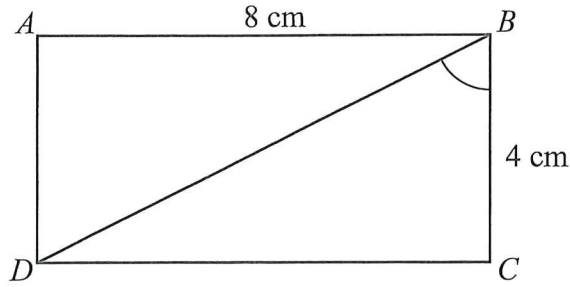
Xander's shoe size:

Yan's shoe size: [1]

[Total 5 marks]

25 In rectangle $ABCD$, AB is 8 cm and BC is 4 cm.

Leave blank



Not drawn accurately

(a) Find the length of the diagonal BD in cm. Give your answer to 1 decimal place.

$BD = \dots\dots\dots$ cm
[3]

(b) Find the size of angle CBD . Give your answer correct to the nearest degree.

angle $CBD = \dots\dots\dots$ °
[3]

[Total 6 marks]

[TOTAL FOR PAPER = 80 MARKS]