

Please check the examination details below before entering your candidate information

Candidate surname

Other names

Centre Number

Candidate Number

**Pearson Edexcel**  
**Level 1/Level 2 GCSE (9–1)**

--	--	--	--	--

--	--	--	--	--

**Thursday 8 November 2018**

Morning (Time: 1 hour 30 minutes)

Paper Reference **1MA1/2F**

**Mathematics**

**Paper 2 (Calculator)**

**Foundation Tier**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided  
– *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a  $\pi$  button, take the value of  $\pi$  to be 3.142 unless the question instructs otherwise.



## Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets  
– *use this as a guide as to how much time to spend on each question.*

## Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Turn over ►

P55587A

©2018 Pearson Education Ltd.

6/7/7/7/7/1/

**.CG Maths.**

Hints



Pearson

Please note that these worked solutions have neither been provided nor approved by Pearson Education and may not necessarily constitute the only possible solutions. Please refer to the original mark schemes for full guidance.

Any writing in blue indicates what must be written in order to answer the questions and get the marks. The worked solutions have been designed to show the smallest amount of work which needs to be done to answer the question.

Anything written in green in a cloud doesn't have to be written in the exam.

Anything written in orange in a rectangle doesn't have to be written in the exam and is there to show what should be put into a calculator or measured using a ruler or protractor.

If you find any mistakes or have any requests or suggestions, please send an email to [curtis@cgmaths.co.uk](mailto:curtis@cgmaths.co.uk)

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

- 1 Write down the value of the 4 in the number 542.3

The 4 is in the tens place

(Total for Question 1 is 1 mark)

- 2 Write down a square number that is also an odd number.

A number which is the result of multiplying a whole number by itself and which ends in a 1, 3, 5, 7 or 9

(Total for Question 2 is 1 mark)

- 3 (a) Change 4560 g into kg.

There are 1000g in 1kg

.....kg  
(1)

- (b) Change 7.3 m into mm.

There are 100cm in 1m and 10mm in 1cm

.....mm  
(1)

(Total for Question 3 is 2 marks)

- 4 Work out the cube root of 64

Type into the calculator

(Total for Question 4 is 1 mark)

- 5 Write 0.31 as a fraction.

Type into the calculator

(Total for Question 5 is 1 mark)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

6 Here are four fractions.

$$\frac{3}{4}$$

$$\frac{5}{7}$$

$$\frac{19}{25}$$

$$\frac{11}{15}$$

Write the fractions in order of size.  
Start with the smallest fraction.

First convert them to decimals. To compare the decimals, compare the hundredths as the units and tenths are the same

(Total for Question 6 is 2 marks)

7 (a) Simplify  $3m - m - m + 3m$

Count the number of m

(1)

(b) Simplify  $2 \times n \times p \times 4$

Multiply in any order. Do the  $2 \times 4$  first

(1)

(Total for Question 7 is 2 marks)

8 A map has a scale of 1 cm to 14 km.

On the map, the distance between Manchester and London is 18.8 cm.

What is the real distance, in km, between Manchester and London?

Every cm is 14km

..... km

(Total for Question 8 is 2 marks)

9 (a) The  $n$ th term of a sequence is  $3n + 4$

Explain why 21 is not a term of this sequence.

$3n + 4 = 21$

Solve the equation to find  $n$ , the term number

(2)

(b) Here are the first three terms of a different sequence.

1            2            4

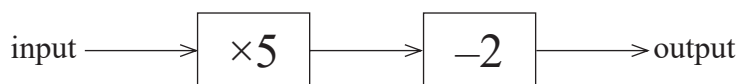
Write down two numbers that could be the 4th term and the 5th term of this sequence. Give the rule you have used to get your numbers.

double the previous term

(2)

(Total for Question 9 is 4 marks)

10 Here is a number machine.



(a) Work out the **output** when the input is 8

$8 \times 5$

Then subtract 2 from the answer

(1)

(b) Work out the **input** when the output is 28

Start with the output then follow the instructions in the opposite order and with the opposite operations

(2)

(Total for Question 10 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

- 11 Adam gets a bonus of 30% of £80  
Katy gets a bonus of £28

Work out the difference between the bonus Adam gets and the bonus Katy gets.

30 ÷ 100 = 0.3, this is 30% as a decimal.  
Multiply £80 by this decimal to find 30%.  
Difference is largest subtract smallest

£.....

(Total for Question 11 is 3 marks)

- 12 There are 49 counters in a bag.

20 of the counters are red.  
The rest of the counters are blue.

One of the counters is taken at random.

Find the probability that the counter is blue.

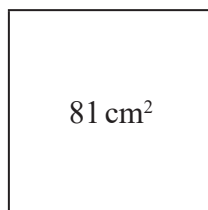
$$49 - 20 = 29$$

29 out of the 49 counters are blue

.....

(Total for Question 12 is 2 marks)

13 A square has an area of  $81 \text{ cm}^2$

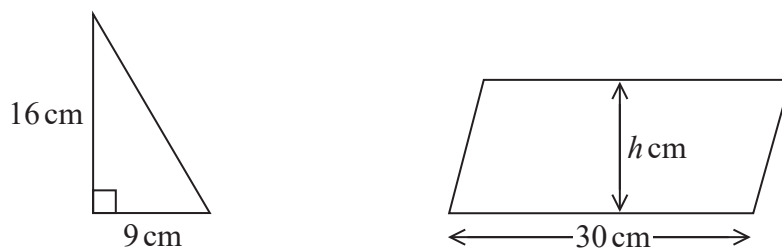


(a) Find the perimeter of the square.

Length squared finds the area of a square so the square root of the area finds the side length.  
Perimeter is the total length of all of the sides

.....cm  
(2)

The diagram shows a right-angled triangle and a parallelogram.



The area of the parallelogram is 5 times the area of the triangle.  
The perpendicular height of the parallelogram is  $h$  cm.

(b) Find the value of  $h$ .

$1/2 \times \text{base} \times \text{height} = \text{area of a triangle}$   
 $\text{Base} \times \text{height} = \text{area of a parallelogram}$

$h =$  .....  
(3)

(Total for Question 13 is 5 marks)

14 Victoria throws an ordinary fair 6-sided dice once.

She says,

“The probability of getting a 3 is half the probability of getting a 6”

(a) Is Victoria correct?

You must explain your answer.

1 out of the 6 faces is a 3 and  
1 out of the 6 faces is a 6

(1)

Andy throws the dice twice.

He says,

“The probability of getting a 6 on both throws is  $\frac{2}{6}$ ”

(b) Is Andy correct?

You must explain your answer.

He has added the probabilities. 'And'  
means multiply and 'or' means add

(1)

Indre throws the dice once.

She also throws a coin to get Heads or Tails.

(c) List all the possible outcomes she can get.

H1, H2, H3...

(2)

(Total for Question 14 is 4 marks)



- 15 Remi invests £600 for 5 years in a savings account.  
By the end of the 5 years he has received a total of £75 simple interest.

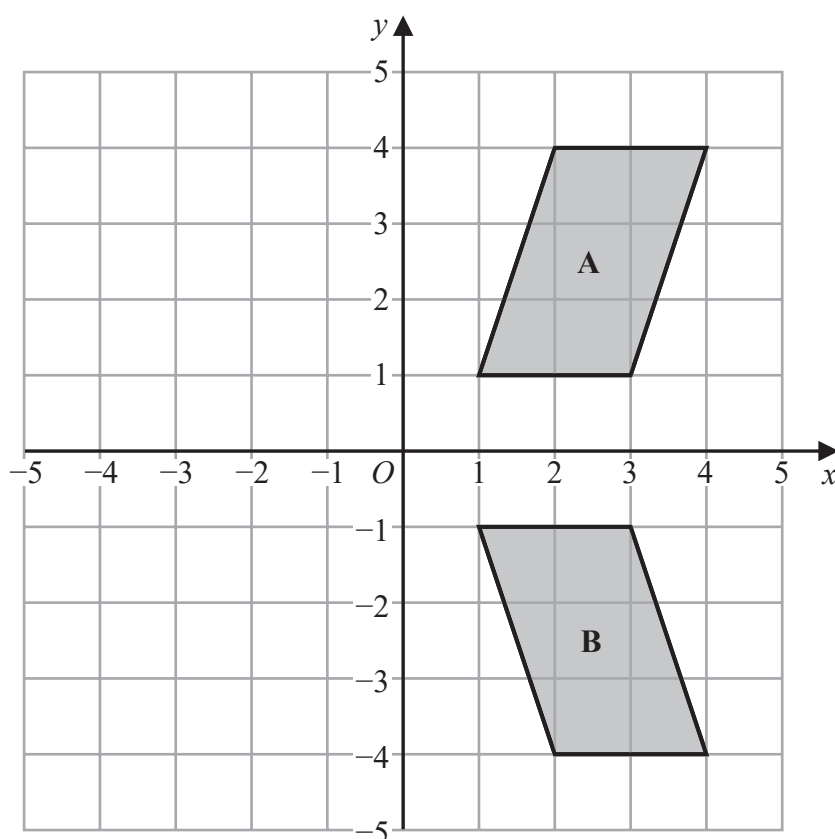
Work out the annual rate of simple interest.

It is simple interest so the interest is the same each year. Work out the interest received in one year. Write this as a fraction of the amount invested then convert it to a percentage

.....%

(Total for Question 15 is 3 marks)

16



Describe fully the single transformation that maps shape A onto shape B.

Reflection.....

Describe the line it is reflecting in

(Total for Question 16 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

17 Adrian is going to make concrete.  
He is going to use

- 180 kg of cement
- 375 kg of sand
- 1080 kg of stone

Cement, sand and stone are sold in bags.

1 bag cement	1 bag sand	1 bag stone
25 kg	22.5 kg	50 kg

Adrian already has

- 10 bags of cement
- 20 bags of sand
- 20 bags of stone

Work out what bags he needs to buy to make the concrete.

Work out how much cement, sand and stone he currently has by multiplying the number of bags by the mass of each bag. If he needs more, subtract the amount he has from what he needs to work out how much more he needs to buy. Work out how many whole number of bags are needed

(Total for Question 17 is 3 marks)

- 18 Bill wants to increase 150 by 3%  
He writes down

$$150 \times 1.3 = 195$$

Bill's method is wrong.

- (a) Explain why.

To convert a decimal to a percentage, multiply it by 100

(1)

Sally wants to decrease 150 by 3%

- (b) Complete this statement to show how Sally can decrease 150 by 3%

$$100\% - 3\% = 97\%$$

$$150 \times \dots = \dots$$

(1)

(Total for Question 18 is 2 marks)

- 19 (a) Solve  $3(x - 4) = 12$

To rearrange an equation, follow BIDMAS backwards. Multiplication needs to be dealt with first as the bracket needs to be resolved last

$$x = \dots$$

(2)

- (b) Factorise fully  $9b - 3b^2$

Bring out the common factors of both terms and leave what is left in a bracket

(2)

(Total for Question 19 is 4 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

20  $\mathcal{E} = \{\text{even numbers between 1 and 25}\}$

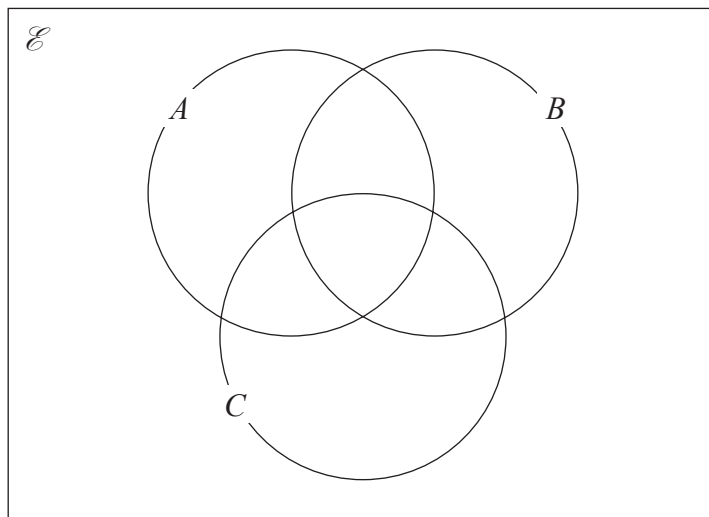
$A = \{2, 8, 10, 14\}$

$B = \{6, 8, 20\}$

$C = \{8, 18, 20, 22\}$

8 is in A, B and C. 20 is in B and C

(a) Complete the Venn diagram for this information.



(4)

A number is chosen at random from  $\mathcal{E}$ .

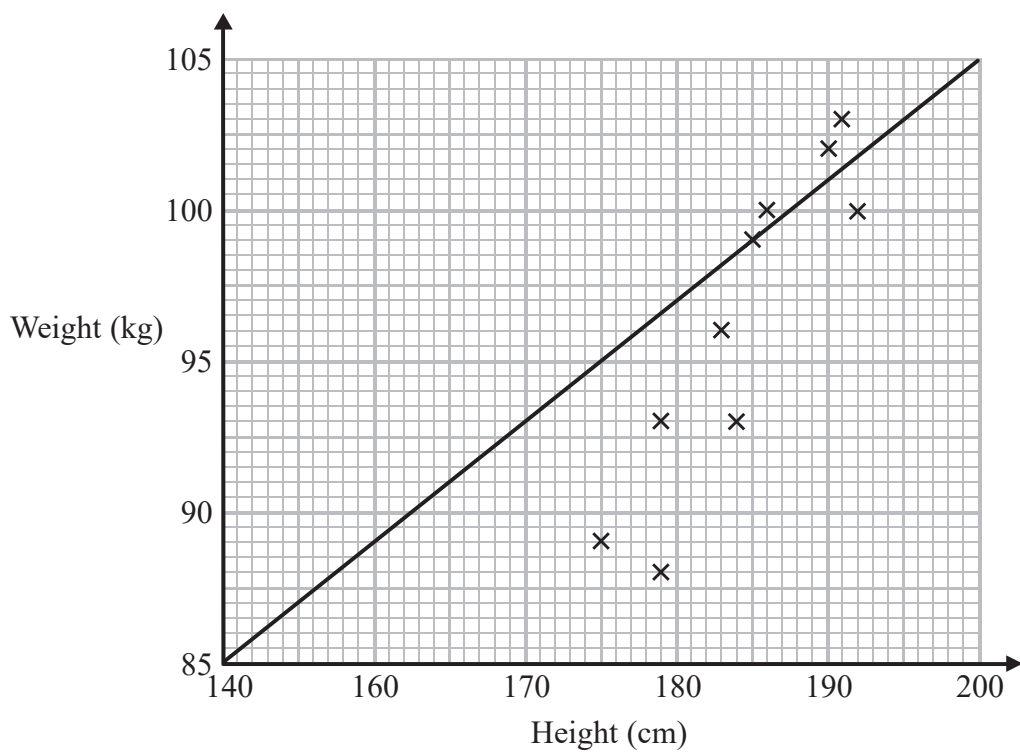
(b) Find the probability that the number is a member of  $A \cap B$ .

A and B

(2)

(Total for Question 20 is 6 marks)

21 Sean has information about the height, in cm, and the weight, in kg, of each of ten rugby players. He is asked to draw a scatter graph and a line of best fit for this information. Here is his answer.



Sean has plotted the points accurately.

Write down two things that are wrong with his answer.

1 ..... The line of best fit

2 ..... The x axis numbering

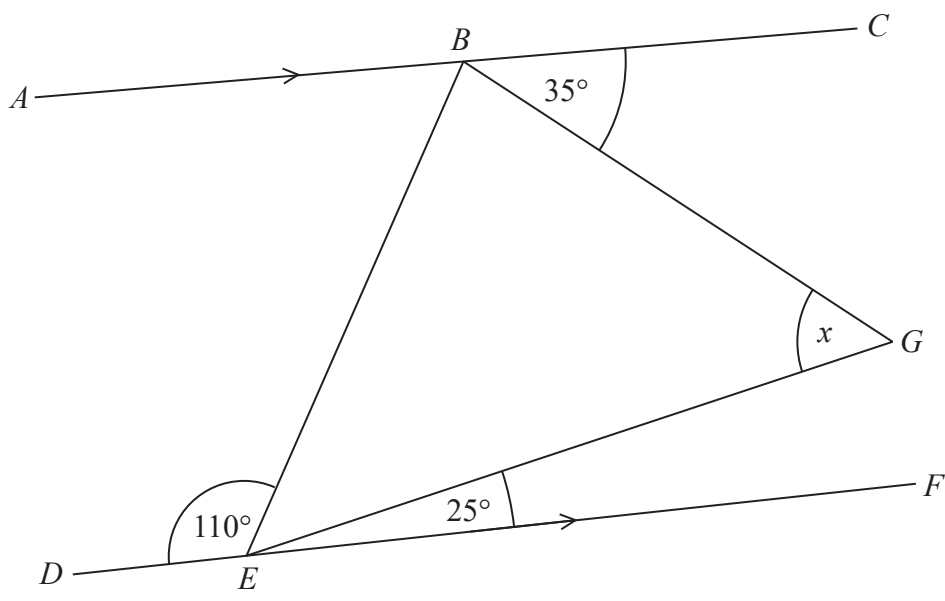
(Total for Question 21 is 2 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

22  $BEG$  is a triangle.



$ABC$  and  $DEF$  are parallel lines.

Work out the size of angle  $x$ .

Give a reason for each stage of your working.

The problem can be solved using the following facts:  
angles on a straight line add to  $180^\circ$ , alternate angles are equal and angles in a triangle add to  $180^\circ$

(Total for Question 22 is 4 marks)

23 Northern Bank has two types of account.  
Both accounts pay compound interest.

**Cash savings account**  
Interest  
2.5% per annum

**Shares account**  
Interest  
3.5% per annum

Ali invests £2000 in the cash savings account.  
Ben invests £1600 in the shares account.

(a) Work out who will get the most interest by the end of 3 years.  
You must show all your working.

100% + 2.5% = 102.5%  
102.5/100 = 1.025

$2000 \times 1.025^3$

This calculates the amount of money Ali will have in 3 years

(4)

In the 3rd year the rate of interest for the shares account is changed to 4% per annum.

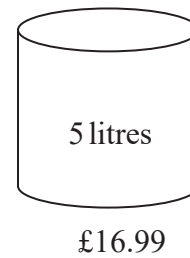
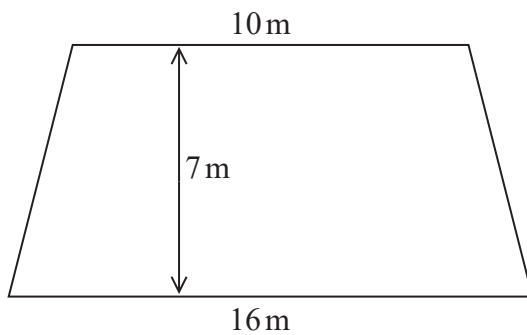
(b) Does this affect who will get the most interest by the end of 3 years?  
Give a reason for your answer.

This means Ben will get more interest

(1)

(Total for Question 23 is 5 marks)

24 The diagram shows a floor in the shape of a trapezium.



John is going to paint the floor.

Each 5 litre tin of paint costs £16.99  
1 litre of paint covers an area of  $2 \text{ m}^2$

John has £160 to spend on paint.

Has John got enough money to buy all the paint he needs?  
You must show how you get your answer.

First calculate the area of the floor.

$\frac{1}{2} \times (a + b) \times h = \text{area of trapezium}$ , where  $a$  and  $b$  are the parallel sides and  $h$  is the distance between them.

Then work out how many litres of paint are needed.

Then work out how many tins are needed. Work out the cost of the whole number of tins needed. Compare the amount to the money he has to spend to decide if he has enough

(Total for Question 24 is 5 marks)



- 25  $A$  is the point with coordinates  $(5, 9)$   
 $B$  is the point with coordinates  $(d, 15)$

The gradient of the line  $AB$  is 3

Work out the value of  $d$ .

Change in  $y$  over change in  $x$   
works out the gradient. Make  
an equation involving  $d$  and the  
gradient. Rearrange to find  $d$

.....  
(Total for Question 25 is 3 marks)

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

26 (a) Expand and simplify  $(5x + 2)(2x - 3)$

.....  
(2)

(b) Factorise  $x^2 + 4x + 3$

What two numbers multiply to 3 and add to 4?

$(x + 1)(x + 3)$   
.....  
(2)

(Total for Question 26 is 4 marks)

27 (a) Write the number 0.00007547 in standard form.

Multiply by ten 5 times to get a number between 1 and 10

.....  
(1)

(b) Write  $3.42 \times 10^4$  as an ordinary number.

Multiply by ten 4 times

.....  
(1)

(c) Work out  $\frac{2.3 \times 10^4 \times 6.7 \times 10^3}{5 \times 10^{-8}}$

Type into calculator

.....  
(2)

(Total for Question 27 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS