Pearson Education accepts no responsibility whatsoever for the accuracy or method of working in the answers given.

Write your name here

Surname	Other names

Pearson Edexcel
Level 1/Level 2 GCSE (9 - 1)

Centre Number | | | | | |

Candidate Number | | | | |

Mathematics

Paper 3 (Calculator)

Foundation Tier

Specimen Papers Set 1
Time: 1 hour 30 minutes

Paper Reference
1MA1/3F

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator.

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.*
- **Calculators may be used.**
- If your calculator does not have a π button, take the value of π to be 3.142 unless the question instructs otherwise.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

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 ▶

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6/6/6/

S 4 9 8 1 9 A 0 1 2 0

PEARSON

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 Write the number 5689 correct to the nearest thousand.

6000

(Total for Question 1 is 1 mark)

2 Work out $\frac{30 + 12}{5 + 3}$

$\frac{42}{8}$

5.25

(Total for Question 2 is 1 mark)

3 Work out the reciprocal of 0.125

$\frac{1}{0.125}$

8

(Total for Question 3 is 1 mark)

4 Here is a list of numbers.

1 2 5 6 12

From the list, write down

(i) a multiple of 4

12

(ii) a prime number

2 (or 5)

(Total for Question 4 is 2 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

5 There are 1.5 litres of water in a bottle.

There are 250 millilitres of water in another bottle.

Work out the total amount of water in the two bottles.

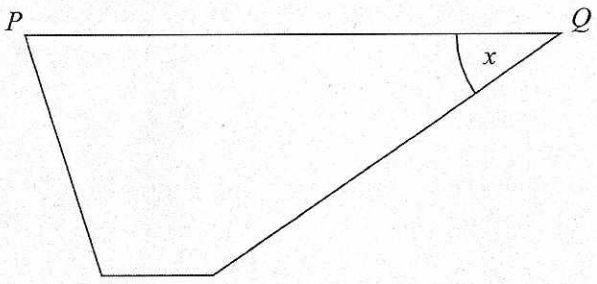
1500 + 250

1750 ml

(Total for Question 5 is 3 marks)

6 Here is a trapezium.

This diagram is accurately drawn.



(a) Measure the length of the line PQ.

7 cm

(1)

(b) Measure the size of the angle marked x.

35 °

(1)

(Total for Question 6 is 2 marks)

7 (a) Solve $f + 2f + f = 20$

$4f = 20$

$f =$ 5

(1)

(b) Solve $18 - m = 6$

$18 = 6 + m$

$12 = m$

$m =$ 12

(1)

(c) Simplify $d^2 \times d^3$

d^5

(1)

(Total for Question 7 is 3 marks)

8 Jayne writes down the following

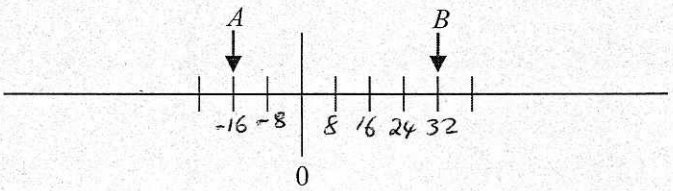
$3.4 \times 5.3 = 180.2$

Without doing the exact calculation, explain why Jayne's answer cannot be correct.

$3 \times 5 = 15$ 180.2 is too big

(Total for Question 8 is 1 mark)

9 The two numbers, A and B, are shown on a scale.



The difference between A and B is 48

Work out the value of A and the value of B.

6 gaps = 48

1 gap = 8

$A =$ -16

$B =$ 32

(Total for Question 9 is 3 marks)

10 Complete this table of values.

n	$3n + 2$
12	38
15	47

(Total for Question 10 is 3 marks)

11 The same number is missing from each box.

$\square \times \square \times \square = 343$

(a) Find the missing number.

$\sqrt[3]{343}$

7

(1)

(b) Work out 4^4

256

(1)

(Total for Question 11 is 2 marks)

12 Here are two numbers.

29 37

Nadia says both of these numbers can be written as the **sum** of two square numbers.

Is Nadia correct?
You must show how you get your answer.

1 4 9 16 25 36

Nadia is correct $25 + 4 = 29$

$36 + 1 = 37$

(Total for Question 12 is 3 marks)

13 Here are the first three terms of a sequence.

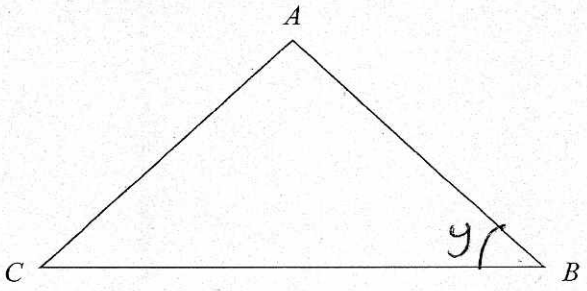
32 26 20 14 8 2 -4 -10

Find the first two terms in the sequence that are less than zero.

-4 -10

(Total for Question 13 is 3 marks)

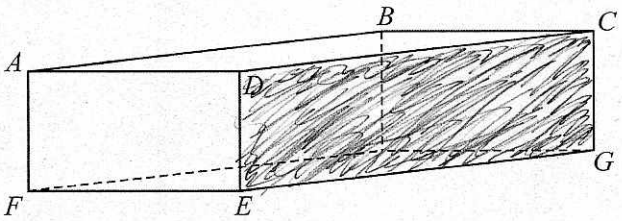
14 Here is a triangle *ABC*.



(a) Mark, with the letter *y*, the angle *CBA*.

(1)

Here is a cuboid.



Some of the vertices are labelled.

(b) Shade in the face *CDEG*.

(1)

(c) How many edges has a cuboid?

12

(1)

(Total for Question 14 is 3 marks)

15 There are 5 grams of fibre in every 100 grams of bread.

A loaf of bread has a weight of 400 g.
There are 10 slices of bread in a loaf.

Each slice of bread has the same weight.

Work out the weight of fibre in one slice of bread.

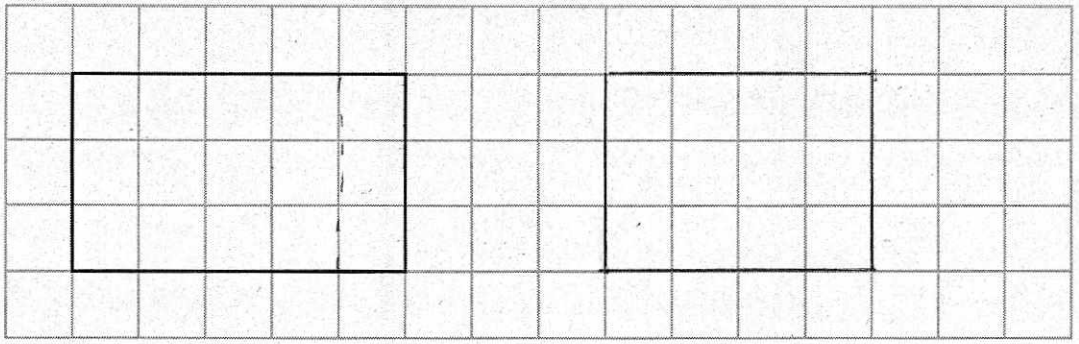
Fibre
5 grams in 100g bread
÷5 1 gram in 20g bread
x2 2 grams in 40g bread
Each slice = 40g

2 g

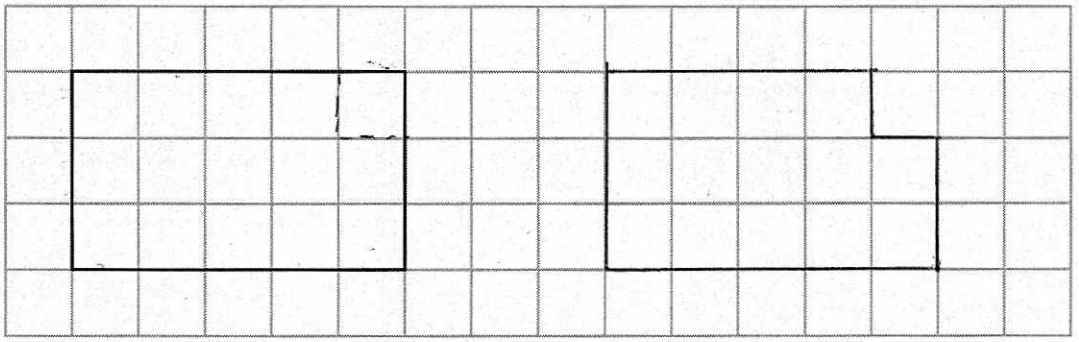
(Total for Question 15 is 3 marks)

16 Give an example to show that when a piece is cut off a rectangle the perimeter of the new shape

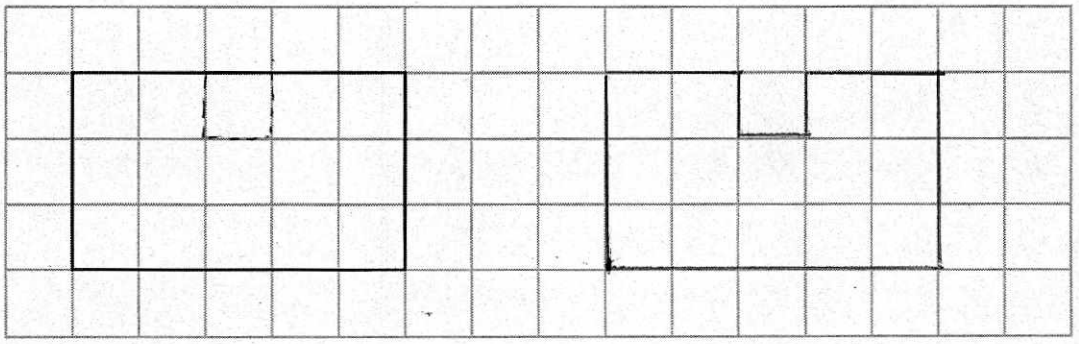
(i) is less than the perimeter of the rectangle,



(ii) is the same as the perimeter of the rectangle,



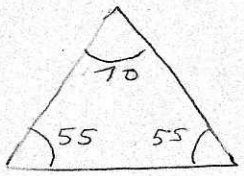
(iii) is greater than the perimeter of the rectangle.

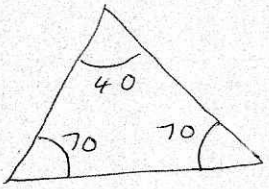


(Total for Question 16 is 3 marks)

17 ABC is an isosceles triangle.
When angle $A = 70°$, there are 3 possible sizes of angle B.

(a) What are they?





70°, 40°, 55°

(3)

When angle $A = 120°$, there is only one possible size of angle B.

(b) Explain why.

A must be the largest angle, you cannot have 2 120° angles in a triangle

(1)

(Total for Question 17 is 4 marks)

18 In a breakfast cereal, 40% of the weight is fruit.
The rest of the cereal is oats.

(a) Write down the ratio of the weight of fruit to the weight of oats.
Give your answer in the form 1 : n.

40 : 60
4 : 6
2 : 3
1 : 1.5

1 : 1.5

(2)

A different breakfast cereal is made using only fruit and bran.
The ratio of the weight of fruit to the weight of bran is 1 : 3

(b) What fraction of the weight of this cereal is bran? $\frac{1}{4}$ $\frac{3}{4}$

$\frac{3}{4}$

(1)

(Total for Question 18 is 3 marks)

19 Boxes of chocolates cost £3.69 each.
A shop has an offer.

Boxes of chocolates
3 for the price of 2

Ali has £50
He is going to get as many boxes of chocolates as possible.

How many boxes of chocolates can Ali get?

3 boxes for £7.38
×6 ×6
18 boxes for £44.28

one more

19 boxes for £47.97

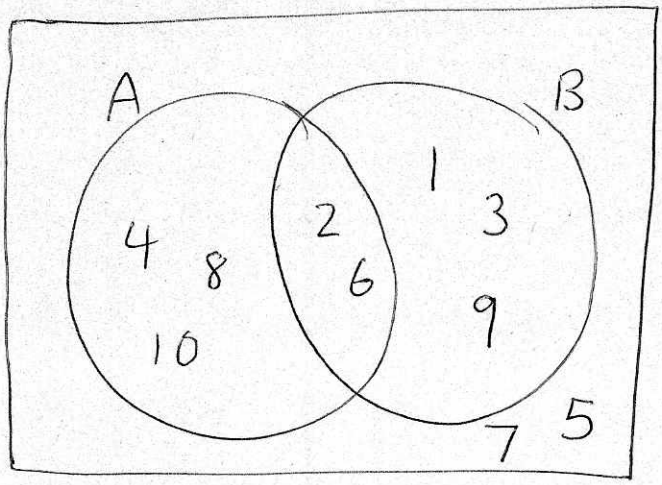
50 ÷ 7.38 = 6.77...
so 6 lots of 3 boxes

19 boxes
~~£47.97~~

(Total for Question 19 is 3 marks)

20 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$
$A = \{\text{multiples of } 2\}$
$A \cap B = \{2, 6\}$
$A \cup B = \{1, 2, 3, 4, 6, 8, 9, 10\}$

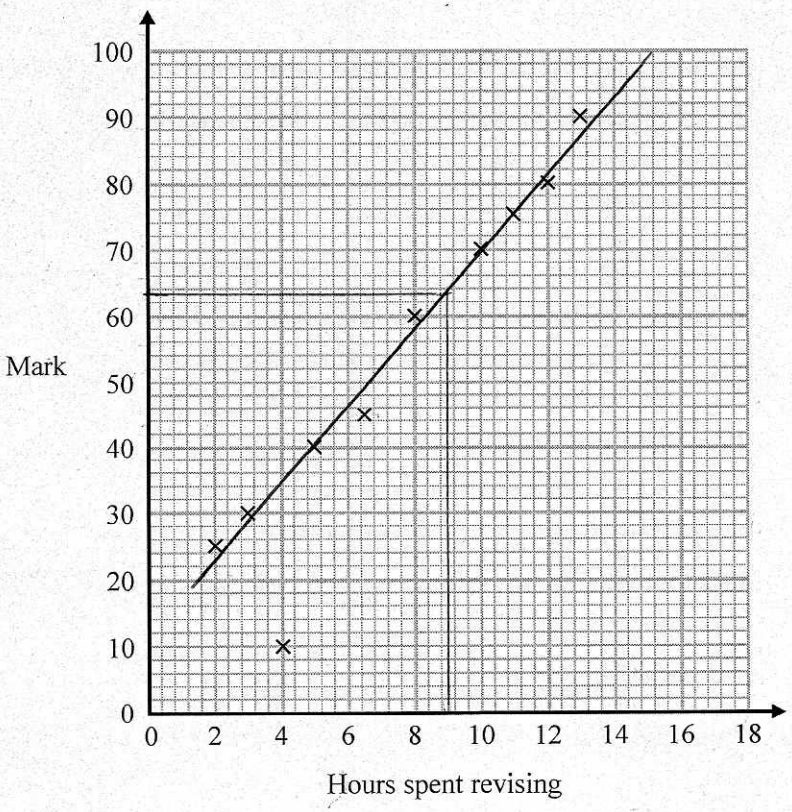
Draw a Venn diagram for this information.



(Total for Question 20 is 4 marks)

21 The scatter diagram shows information about 10 students.

For each student, it shows the number of hours spent revising and the mark the student achieved in a Spanish test.



One of the points is an outlier.

(a) Write down the coordinates of the outlier.

(4, 10)

(1)

For all the **other** points

(b) (i) draw the line of best fit,

(ii) describe the correlation.

positive correlation, as hours spent revising increases the mark increases

(2)

A different student revised for 9 hours.

(c) Estimate the mark this student got

63

(1)

The Spanish test was marked out of 100

Lucia says,

"I can see from the graph that had I revised for 18 hours I would have got full marks."

(d) Comment on what Lucia says.

she cannot say this because 18 is outside the range of data

(1)

(Total for Question 21 is 5 marks)

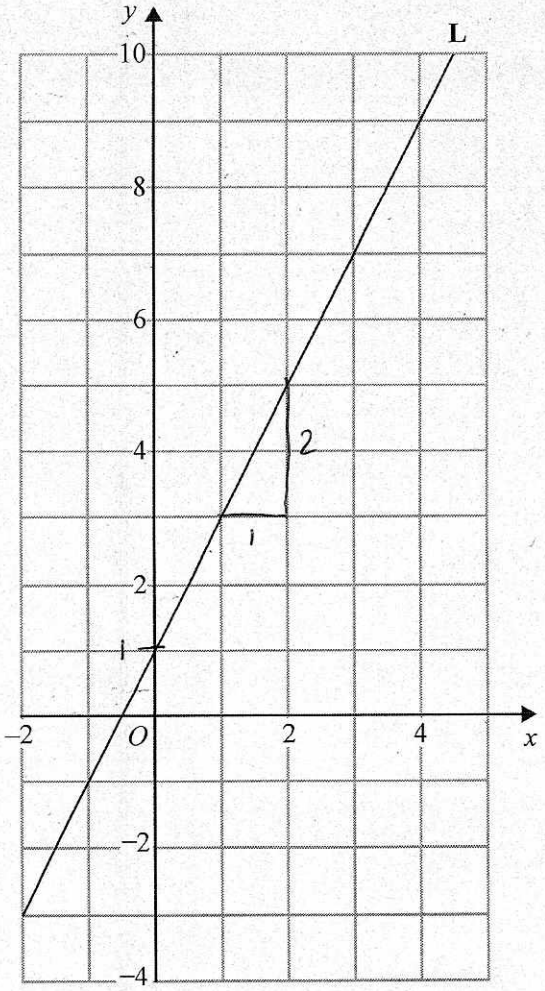
22 The length, L cm, of a line is measured as 13 cm correct to the nearest centimetre.

Complete the following statement to show the range of possible values of L

$12.5 \leqslant L < 13.5$

(Total for Question 22 is 2 marks)

23 Line **L** is drawn on the grid below.



Find an equation for the straight line **L**.
Give your answer in the form $y = mx + c$

gradient
$m = 2$

y intercept
$c = 1$

$y = 2x + 1$

(Total for Question 23 is 3 marks)

24 Jenny works in a shop that sells belts.

The table shows information about the waist sizes of 50 customers who bought belts from the shop in May.

Belt size	Waist (w inches)	Frequency
Small	$28 < w \leqslant 32$	24
Medium	$32 < w \leqslant 36$	12
Large	$36 < w \leqslant 40$	8
Extra Large	$40 < w \leqslant 44$	6

30 × 24 = 720
34 × 12 = 408
38 × 8 = 304
42 × 6 = 252
1684

(a) Calculate an estimate for the mean waist size.

$\frac{1684}{50} = 33.68$

33.68 inches

(3)

Belts are made in sizes Small, Medium, Large and Extra Large.

Jenny needs to order more belts in June.
The modal size of belts sold is Small.

Jenny is going to order $\frac{3}{4}$ of the belts in size Small.

The manager of the shop tells Jenny she should **not** order so many Small belts.

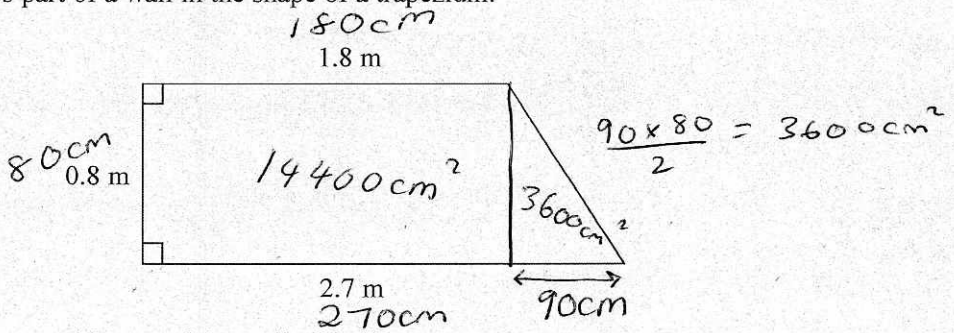
(b) Who is correct, Jenny or the manager?
You must give a reason for your answer.

The Manager $\frac{24}{50}$ is less than half so she shouldn't order $\frac{3}{4}$ in small

(2)

(Total for Question 24 is 5 marks)

25 The diagram shows part of a wall in the shape of a trapezium.



$\frac{90 \times 80}{2} = 3600\text{cm}^2$

Karen is going to cover this part of the wall with tiles.
Each rectangular tile is 15 cm by 7.5 cm

Tiles are sold in packs.
There are 9 tiles in each pack.

Karen divides the area of the wall by the area of a tile to work out an estimate for the number of tiles she needs to buy.

(a) Use Karen's method to work out an estimate for the number of packs of tiles she needs to buy.

Total Area = 14400 + 3600

= 18000 cm²

Area of Tile = 15 × 7.5

= 112.5 cm²

$\frac{18000}{112.5} = 160$ tiles

$\frac{160}{9} = 17.7$ packs

= 18 packs.

18

(5)

Karen is advised to buy 10% more tiles than she estimated.
Buying 10% more tiles will affect the number of the tiles Karen needs to buy.

She assumes she will need to buy 10% more packs of tiles.

(b) Is Karen's assumption correct?
You must show your working.

18 Packs
10% = 1 8
20 packs.

160 tiles
10% = 16
176 tiles
$\frac{176}{9}$ = 20 packs.

Yes she is correct

(2)

(Total for Question 25 is 7 marks)

26 Factorise $x^2 + 3x - 4$

$(x+4)(x-1)$

(Total for Question 26 is 2 marks)

27 Here are the equations of four straight lines.

Line A	$y = 2x + 4$
Line B	$2y = x + 4$
Line C	$2x + 2y = 4$
Line D	$2x - y = 4$

$y = \frac{1}{2}x + 2$

$y = 2x - 4$

Two of these lines are parallel.
Write down the two parallel lines.

Line A and line D

(Total for Question 27 is 1 mark)

28 The densities of two different liquids A and B are in the ratio 19 : 22

The mass of 1 cm^3 of liquid B is 1.1 g.

5 cm^3 of liquid A is mixed with 15 cm^3 of liquid B to make 20 cm^3 of liquid C.

Work out the density of liquid C.

Liquid B:

Density = $\frac{\text{Mass}}{\text{Volume}}$

$= \frac{1.1}{1} = 1.1\ g/cm^3$

Liquid A

$\frac{1.1}{22} \times 19 = 0.95\ g/cm^3$

A Mass = D × V
= 0.95 × 5
= 4.75 g

B Mass = 1.1 × 15
= 16.5 g

Total mass = 21.25 g

$\frac{21.25}{20} = 1.0625$

1.0625 g/cm^3

(Total for Question 28 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS