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

Centre Number

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Candidate Number

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Mathematics Shadow Paper Set I

Paper 3 (Calculator)

Foundation Tier

Time: 2 hour 30 minutes

Paper Reference

1MA1/3F

You must have: Ruler graduated in centimetres and millimetres,
protractor, pair of compasses, pen, HB pencil, eraser.
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 not be used.**



Information

- The total mark for this paper is 175
- 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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P 4 8 1 3 4 A 0 1 2 0

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 7 in the number 58 728

.....
(1)

- 2 Write down the value of the 7 in the number 82 172

.....
(1)

- 3 Write down the value of the 7 in the number 71 828

.....
(1)

- 4 Find $\sqrt{2.25}$

.....
(1)

- 5 Find $\sqrt{7.29}$

.....
(1)

- 6 Find $\sqrt{1.96}$

.....
(1)

7 Write 39% as a fraction

.....
(1)

8 Write 7% as a fraction

.....
(1)

9 Write 12% as a fraction

.....
(1)

10 Write $\frac{1}{2}$ as a decimal

.....
(1)

11 Write $\frac{4}{5}$ as a decimal

.....
(1)

12 Write $\frac{7}{20}$ as a decimal

.....
(1)

13 Write $\frac{3}{4}$ as a percentage

.....
(1)

14 Write $\frac{9}{10}$ as a percentage

.....
(1)

15 Write $\frac{17}{20}$ as a percentage

.....
(1)

16 Write down all the factors of 12

.....
(2)

17 Write down all the factors of 45

.....
(2)

18 Write down all the factors of 32

.....
(2)

19 Write down all the factors of 60

.....
(2)

20 Here are some fractions.

$$\frac{12}{36} \quad \frac{3}{9} \quad \frac{5}{15} \quad \frac{3}{10} \quad \frac{6}{18} \quad \frac{2}{6}$$

Which of these fractions is not equivalent to $\frac{1}{3}$?

.....
(2)

- 21 Here are some fractions.

$$\frac{33}{44} \quad \frac{6}{8} \quad \frac{10}{15} \quad \frac{21}{28} \quad \frac{18}{24} \quad \frac{4}{6}$$

Which of these fractions is not equivalent to $\frac{3}{4}$?

.....

(2)

- 22 Here are some fractions.

$$\frac{8}{10} \quad \frac{18}{20} \quad \frac{40}{50} \quad \frac{12}{15} \quad \frac{80}{100} \quad \frac{5}{6}$$

Which of these fractions is not equivalent to $\frac{4}{5}$?

.....

(2)

- 23 Here are some fractions.

$$\frac{4}{10} \quad \frac{17}{30} \quad \frac{38}{45} \quad \frac{13}{15} \quad \frac{27}{30} \quad \frac{3}{4}$$

Put them into order.

.....

(3)

- 24 Here are some fractions.

$$\frac{7}{10} \quad \frac{7}{15} \quad \frac{7}{45} \quad \frac{7}{25} \quad \frac{7}{20} \quad \frac{7}{4}$$

Put them into order.

.....

(3)

25 Joe has some £10 notes and some £5 notes.

The notes have a total value of £350.

Joe has 11 £10 notes.

Work out the number of £5 notes Joe has.

.....

(3)

26 Bill has some £20 notes, some £10 notes and some £5 notes.

The notes have a total value of £450.

Bill has 13 £20 notes and 8 £5 notes.

Work out the number of £10 notes Bill has.

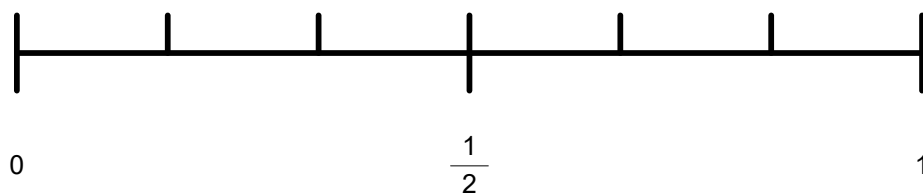
.....

(3)

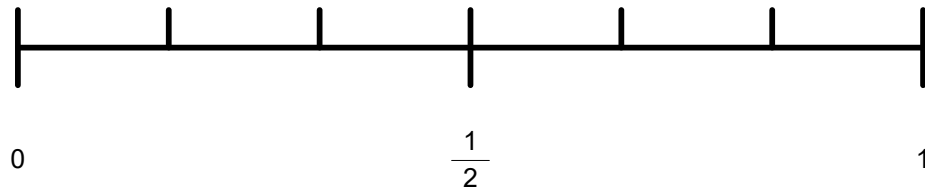
27 Tilly has an ordinary fair dice.

She rolls it once.

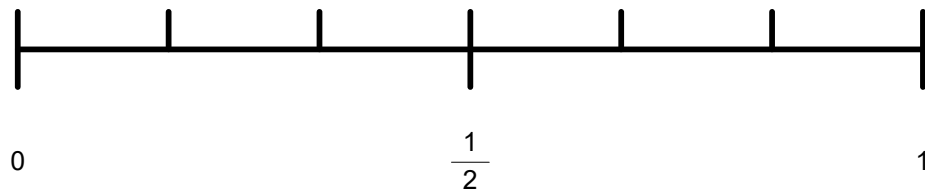
a) On the probability scale below, mark with a cross the probability that she throws the number 4.



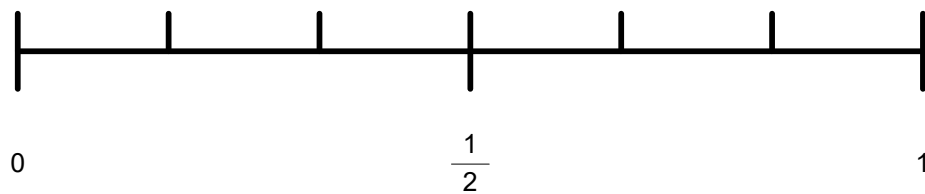
- b) On the probability scale below, mark with a cross the probability that she throws a number less than 4.



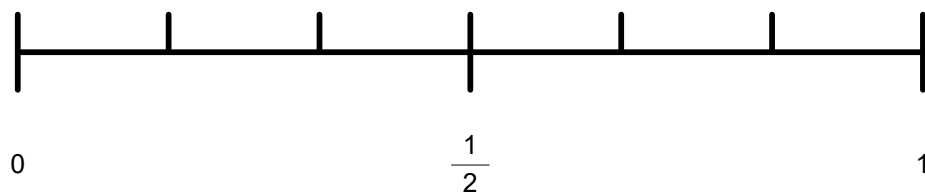
- c) On the probability scale below, mark with a cross the probability that Tilly throws a number that is greater than 3 or even.



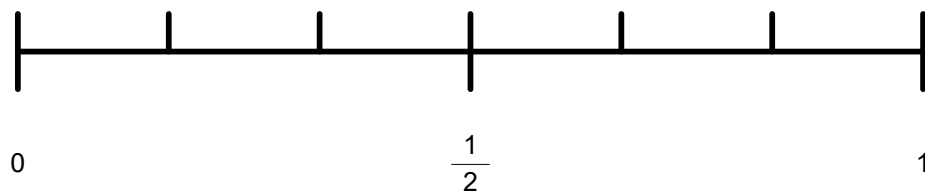
- d) On the probability scale below, mark with a cross the probability that Tilly throws a number that is less than nine.



- e) On the probability scale below, mark with a cross, the probability that Tilly throws a nine.



- f) On the probability scale below, mark with a cross the probability of her throwing an even number.



(6)

28 Here is a menu.

| Starter | Main Course |
|---|--------------------------------------|
| Prawn Cocktail (P) | Steak Pie and Chips (S) |
| Lentil Soup and Roll (L) | Vegetarian Lasagne (V) |
| Tomato Soup and Roll (T) | Beef, Potatoes, Peas and Carrots (B) |
| Yorkshire Pudding with Gravy (Y) | |
| Delicious Pancakes with Brown Sauce and Gravy (D) | |

Gabby can choose one starter and one main course.

Write down all the possible combinations Gabby can choose.

(2)

29 Jacob is 1.42m high.

Hayley's height is 154 cm.

Sarah is 1504 mm tall.

a) What is the range in heights?

.....

(2)

b) What is the mean average height?

.....

(2)

c) Sonny joins the group.

The mean average height of the group alters to 150cm.

How tall is Sonny?

.....

(3)

30 The n th term in a sequence is given by $5n - 2$.

a) Work out the fourth term in the sequence.

.....
(1)

Here is another sequence.

8 15 22 29

b) What are the next two terms in this sequence?

.....
(1)

c) Is 64 a number in this sequence?

You must give a reason for your answer.

.....
(2)

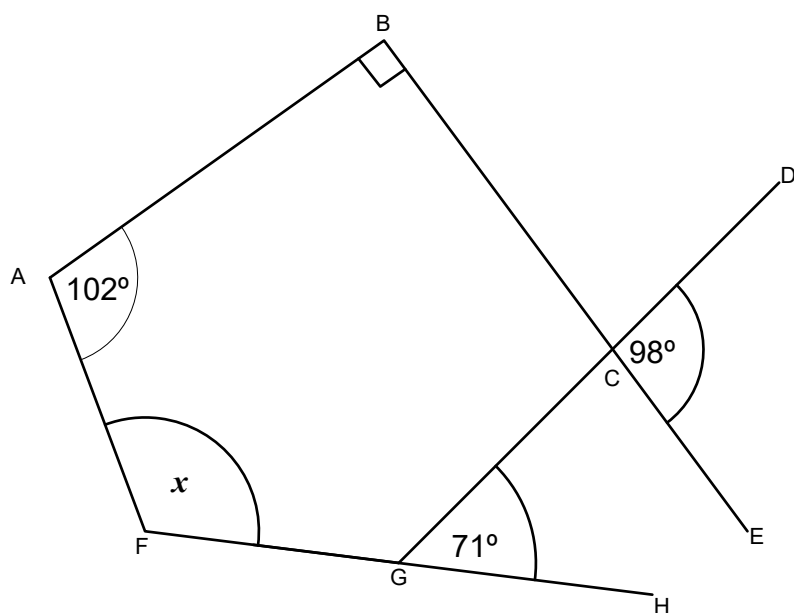
Here is another sequence.

1 $2a$ $4a^2$ $8a^3$

d) What are the next two terms in this sequence?

.....
(2)

- 31 ABCGF is an irregular pentagon.
FGH, GCD and BCE are straight lines.

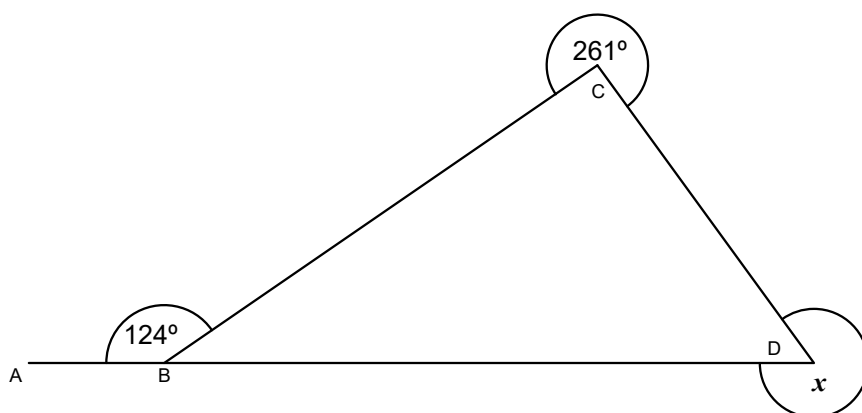


Find the size of angle x .

You must give reasons for your answer.

.....
(5)

- 32 BCD is a triangle.
ABD is a straight line.



Find angle x .

You must give reasons for your answer.

.....

(4)

- 33 There are 500 coins in a bag.
 10% of the coins are 20p pieces.
 15% of the coins are £1 coins.
 35% of the coins are 2p pieces.
 The rest of the coins are 10p pieces.
 What is the total value of the coins in the bag?

.....

(5)

- 34 Bill put £250 in a bank account that paid 4.5% compound interest per annum.
 Bill did not touch his account or the money in it for 15 years.
 How much did Bill have in his account after 15 years?

.....

(2)

- 35 Blake buys a house for £210,000.
Blake pays a deposit of 15% of the cost.
He pays the rest in 360 equal monthly instalments.
How much does he pay each month?

.....
(3)

- 36 a) Simplify $t^{14} \div t^8$

.....
(1)

- b) Simplify $(d^3)^4$

.....
(1)

- c) Simplify $q \times q^7$

.....
(1)

- d) Simplify $w + w + w + w^3$

.....
(1)

37 a) Expand $x(4x^2 + 5p)$

.....
(1)

b) Expand $2f(4f^4g^5 + 5f)$

.....
(1)

c) Expand $(8x - 3)(4x - 2)$

.....
(2)

d) Expand $(4x + 7)(3x - 2)$

.....
(2)

e) Expand $(2x^2 + 5)(3x - 2)$

.....
(2)

f) Expand $x^2(4x^3 - 3x)$

.....
(1)

38 a) Factorise $12x^2 - 8$

.....
(1)

b) Factorise $24p^3q^2 + 9p^4q^5$

.....
(1)

c) Factorise $x^2 - 25$

.....
(2)

d) Factorise $16x^4 - 36$

.....
(2)

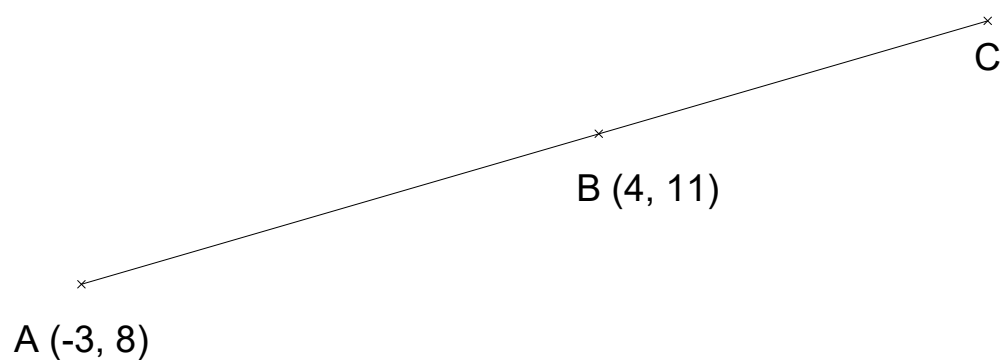
e) Factorise $8x^2y + 12xy^3$

.....
(2)

f) Factorise $15x^4y^6z^7 - 10x^3y^4z^8 + 25x^3y^4z^6$

.....
(2)

39 ABC is a straight line.



Point A has the co-ordinates (-3,8)

Point B has the co-ordinates (4, 11)

$$BC = \frac{1}{3}AB$$

Find the coordinates of point C.

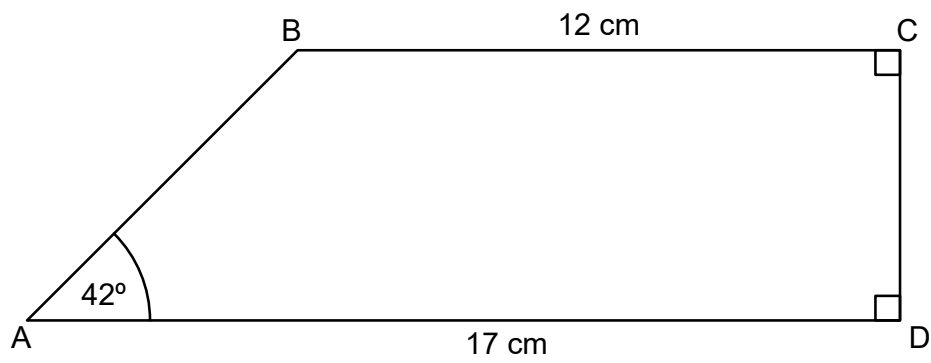
.....
(3)

40 A line segment runs from (-5,-3) to (12,-9).

Find the midpoint of the line.

.....
(2)

- 41 The diagram below shows a trapezium ABCD.



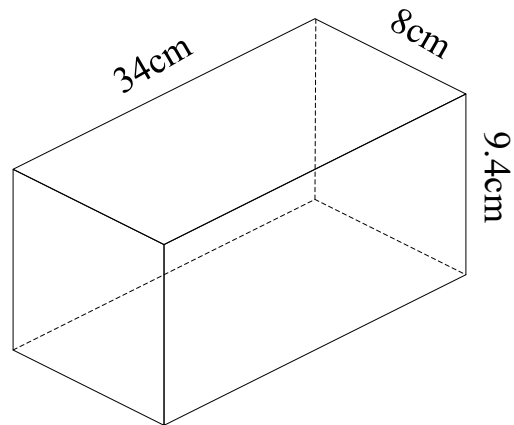
- a) Find the height of the trapezium.

.....
(4)

- b) Find the area of the trapezium.

.....
(2)

42 Below is a diagram of a 3D shape.



a) Name the shape in the diagram.

.....
(1)

b) How many edges does the shape have?

.....
(1)

c) How many vertices does the shape have?

.....
(1)

d) How many faces does the shape have?

.....
(1)

e) What is the volume of the shape?

.....
(3)

f) What is the surface area of the shape?

.....
(4)

g) What is the total length of the edges in the shape?

.....
(2)

43 a) Use your calculator to work out the value of

$$\frac{51.4 - 3.1^2}{5.9 \times 6.7}$$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....
(2)

b) Write your answer correct to 3 significant figures

.....
(1)

44 Estimate

$$\frac{32.73 \times 67.9 \times 425}{41.75 \times 64.3 \times 73.8}$$

.....
(3)

44 Estimate

$$\frac{\sqrt{123}}{8.9^2}$$

.....
(2)

45 Billy performs a calculation on his calculator.

The first three digits on his calculator are 7.93 and then there are some more digits on his calculator.

Give the error interval of Billy's calculation.

.....
(2)

46 Jane performs a different calculation on her calculator.

The first two digits showing on her calculator are 6.7.

Give the error interval of Jane's calculation.

.....
(2)

- 47 Ted has rounded his number to the nearest tenth.

His answer is 8.9.

Write the error interval of Ted's number.

.....
(2)

- 48 Alice and Nancy both think of a number.

They round their numbers to the nearest 10.

Alice's number has been rounded to 30.

Nancy's number has been rounded to 70.

Give the error interval of the difference between Alice's and Nancy's actual numbers.

.....
(2)

- 49 Beatrice and James both think of a number.

They round their numbers to the nearest 50.

Beatrice's number has been rounded to 300.

James' number has been rounded to 1850.

Give the error interval of the difference between their actual numbers.

.....
(2)

50 Solve algebraically the simultaneous equations

$$4x + 7y = 11$$

$$5x - 4y = 52$$

x=.....

y=.....

(3)

51 Solve algebraically the simultaneous equations

$$5x + 8y = 18$$

$$7x + 10y = 21$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(3)

52 Convert 783 into standard form

.....
(2)

53 Convert 93 822 into standard form

.....
(2)

54 Convert 83.982 into standard form

.....
(2)

55 Convert 0.0035 into standard form

.....
(2)

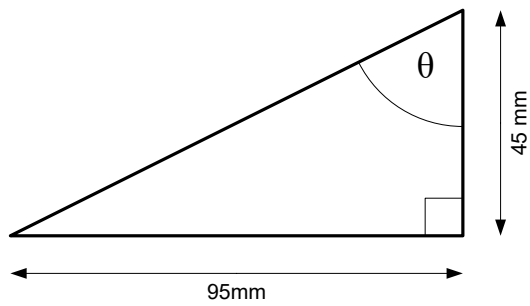
56 Write 7.36×10^4 in ordinary form

.....
(2)

57 Write 9.656×10^{-3} in ordinary form

.....
(2)

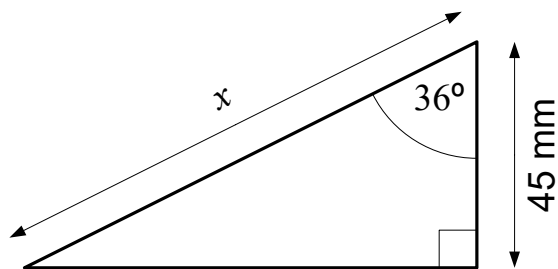
58 Find the size of angle θ .



.....

(3)

59 Find the length of side x .



.....

(3)

60 Write down the list of the first five prime numbers.

.....

(5)