Please check the examination details below before entering your candidate information

Candidate surname

Other names

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

Centre Number

Candidate Number

Thursday 7 November 2019

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 π button, take the value of π 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.
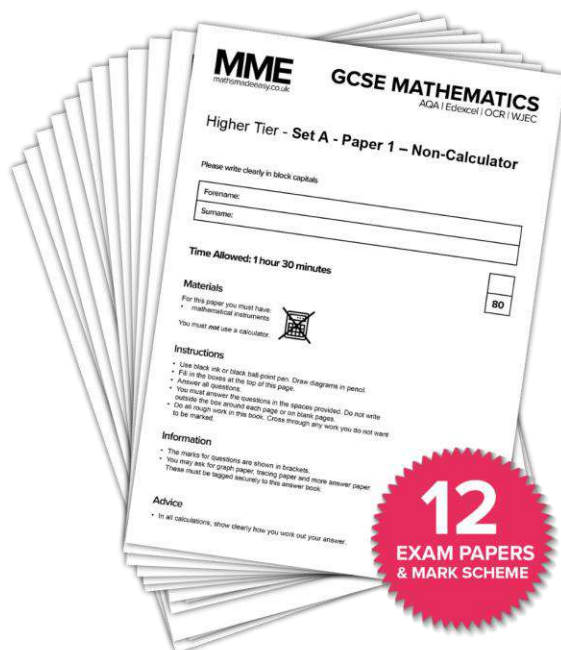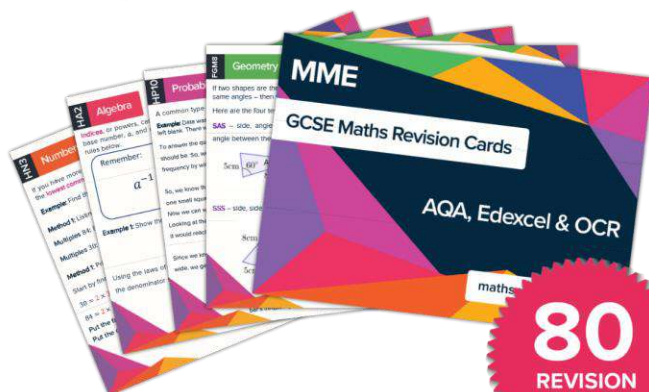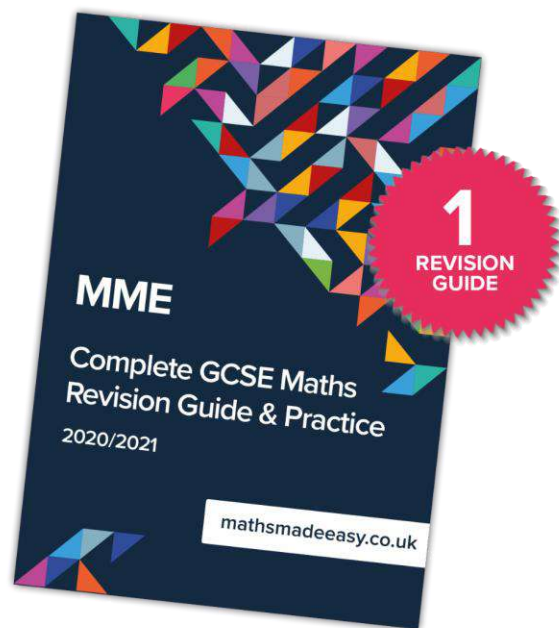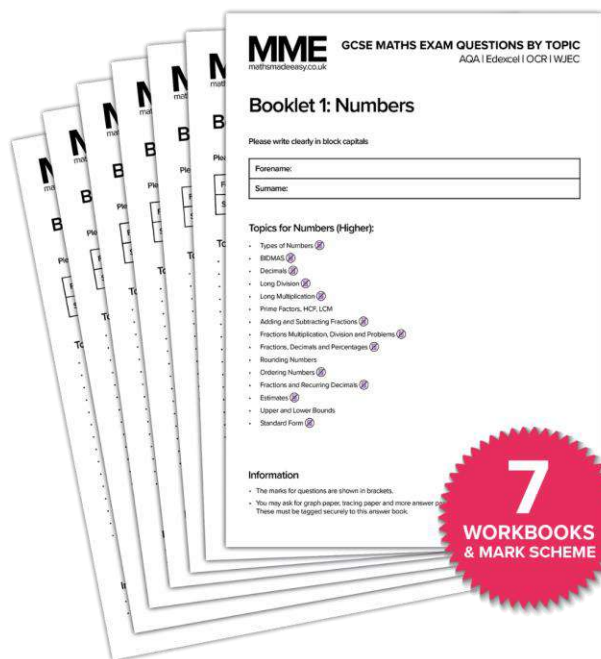- Check your answers if you have time at the end.

Turn over ▶

MME.

GCSE Maths Products

7 WORKBOOKS & MARK SCHEME

1 REVISION GUIDE

80 REVISION CARDS

1 FORMULAE Z-CARD

12 EXAM PAPERS & MARK SCHEME

Available in the course in a box or for purchase separately.

1   Write these numbers in order of size.
    Start with the smallest number.

$$8 \quad -4 \quad 1 \quad -7 \quad -2$$

-7, -4, -2, 1, 8

(Total for Question 1 is 1 mark)

2   Write the number 8375 correct to the nearest thousand.

8000

(Total for Question 2 is 1 mark)

3   Write 0.23 as a percentage.

23 %

(Total for Question 3 is 1 mark)

4   Find the value of $\sqrt{17.64}$

4·2

(Total for Question 4 is 1 mark)

P 5 8 8 7 3 A 0 2 2 4

5   Find the value of 6^5

                                         7776

6   There are 14 rows of seats in a cinema.
    There are 15 seats in each row.

    A film was shown in the cinema on Saturday.
    Each ticket for the film cost £6.50

    The tickets that were sold cost a total of £1274

    How many tickets were **not** sold?

    $14 \times 15 = 210$ seats

    $210 \times £6.50 = £1365$ total

    $1365 - 1274 = £91$

    $91 \div 6.50 = 14$ seats not sold

                                         14

7 Harry has 20 sweets.
He gives 7 of the sweets to Nadia.

What fraction of the 20 sweets does Harry have now?

$20 - 7 = 13$

$\dfrac{13}{20}$

8 Here is a number machine.

input ⟶ | × 8 | ⟶ | − 5 | ⟶ output

(a) Work out the output when the input is 6

43

(1)

Here is a different number machine.

input ⟶ | + 13 | ⟶ | ÷ 3 | ⟶ output

When the input is 17, the output is 10

(b) Complete the number machine.

(1)

9 Here is a list of numbers.

$$6 \quad 4 \quad 8 \quad 9 \quad 4 \quad 3$$

(a) Work out the median.

$$\cancel{3} \quad \cancel{4} \quad 4 \quad \underline{6} \quad \cancel{8} \quad \cancel{9}$$

$$\text{median} = \frac{4+6}{2} = 5$$

5

(2)

Aisha picks at random one of the numbers.

(b) What is the probability that she picks an odd number?

$$\frac{2}{6}$$

(2)

Clara has five cards.
There is a number on each card.
Two of the numbers are hidden.

| **3** | **?** | **8** | **5** | **?** |

The mode of the five numbers is 3
The mean of the five numbers is 5

(c) Work out the two numbers that are hidden.

$$5 \times 5 = 25 \text{ total}$$

one card must be 3 as 3 is mode

$$3 + 3 + 8 + 5 = 19$$

$$25 - 19 = 6$$

3 , 6

(2)

(Total for Question 9 is 6 marks)

Turn over ▶

10 Here is the charge at a car park in Spain.

> **Car park**
>
> 0.024 euros per minute

Jon parked his car in this car park.

Jon drove into the car park at 1045
When he drove out of the car park he had to pay 8.40 euros.

At what time did Jon drive out of the car park?

$$8.40 \div 0.024 = 350 \text{ minutes}$$
$$= 5 \text{ hours } 50 \text{ minutes}$$

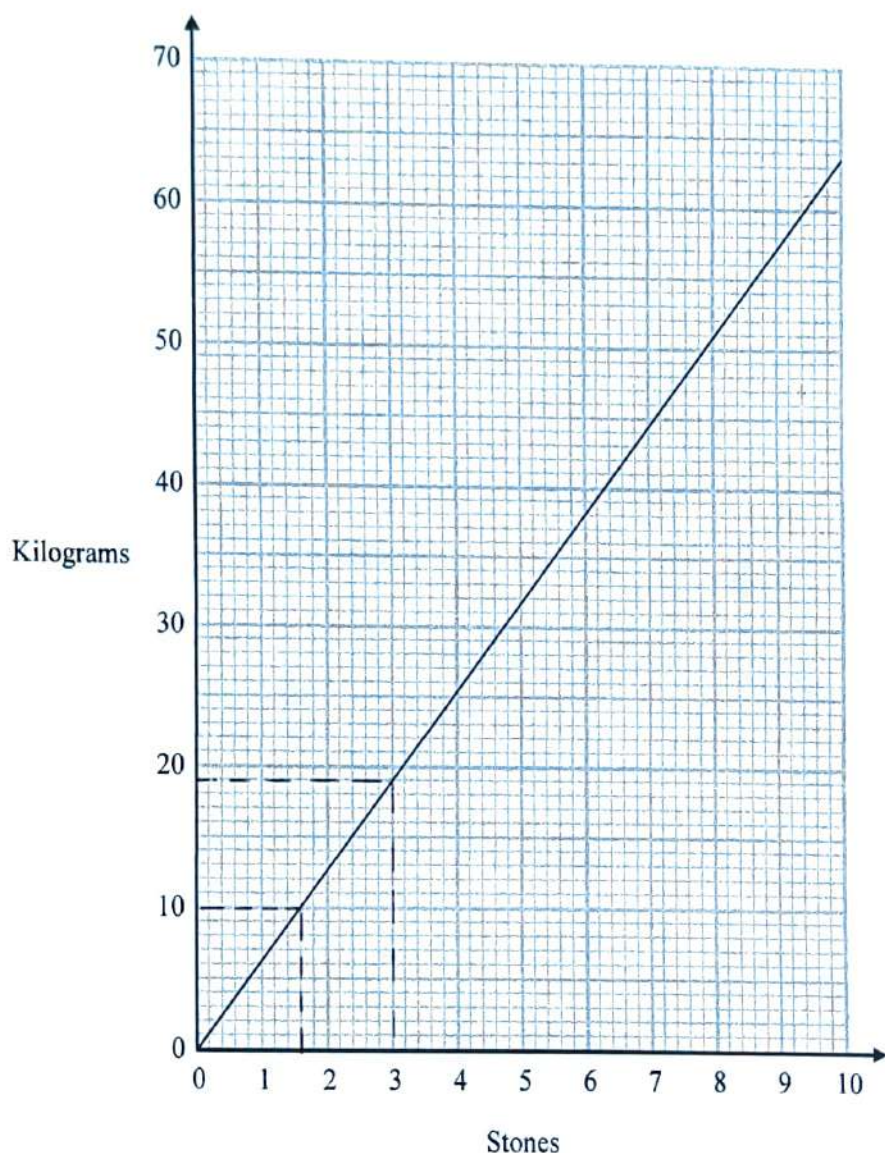$$1045 + 5 \text{ hours} = \cancel{1545} \quad 1545$$

$$1545 + 50 \text{ minutes} = 1635$$

16 35

(Total for Question 10 is 3 marks)

11 You can use this graph to change between stones and kilograms.

Kilograms (y-axis) vs Stones (x-axis)

(a) Change 3 stones to kilograms.

.... 19 .... kilograms

(1)

(b) Change 80 kilograms to stones.

$10 \text{ kg} = 1.6 \text{ stones}$

$80 \text{ kg} = 1.6 \times 8 = 12.8 \text{ stones}$

.... 12.8 .... stones

(2)

(Total for Question 11 is 3 marks)

Turn over ▶

12 Find the number that is exactly halfway between $\frac{1}{10}$ and $\frac{3}{5}$

$$\frac{1}{10} = 0.1 \qquad \frac{3}{5} = 0.6$$

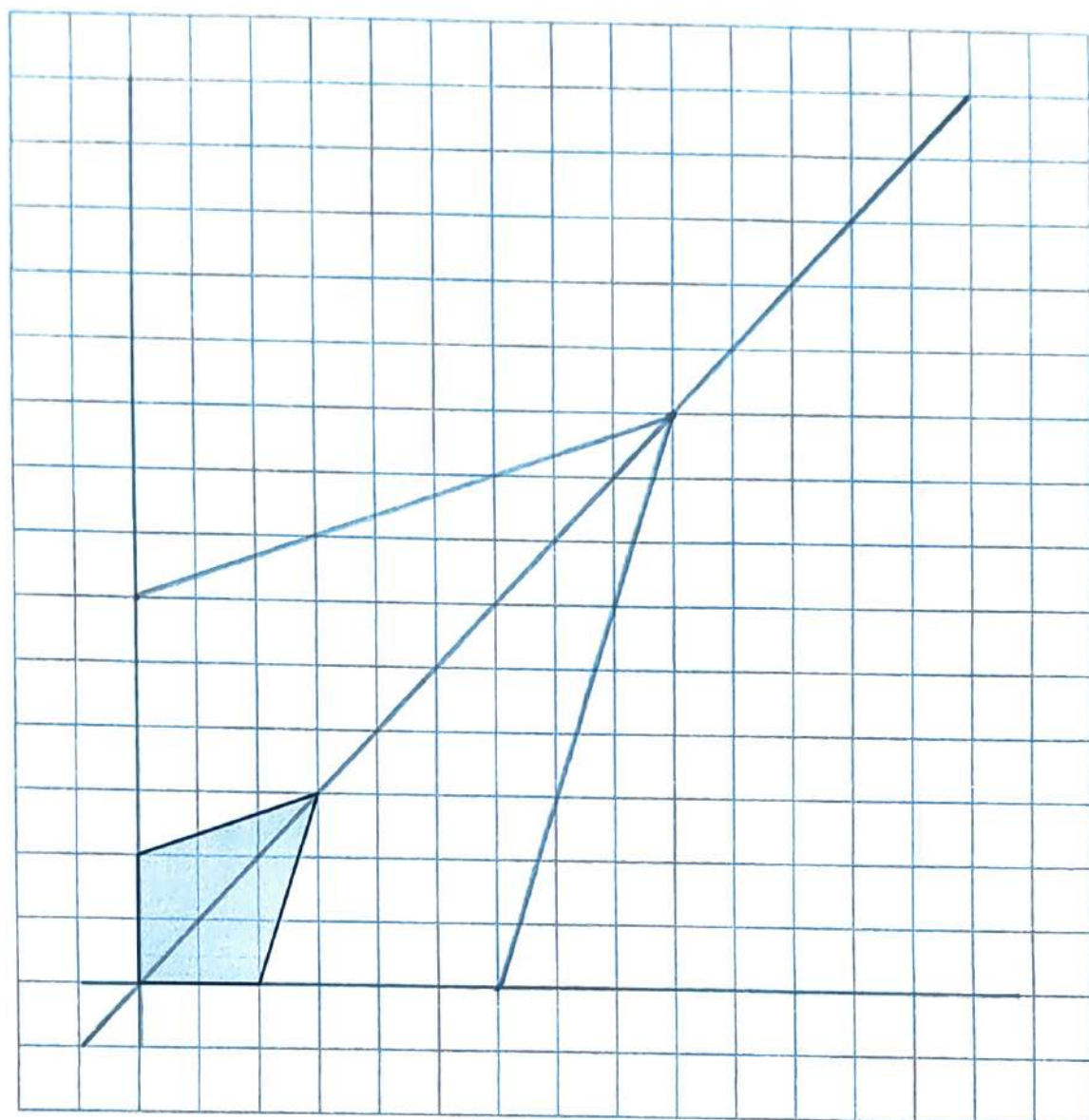$$\frac{0.1 + 0.6}{2} = 0.35$$

0.35

(Total for Question 12 is 2 marks)

13

On the grid, draw an enlargement of the shaded shape with a scale factor of 3

_____

(Total for Question 13 is 2 marks)

14 A shop sells compost in 20 litre bags and in 40 litre bags.
One day the shop had two special offers for the compost.

20
litres

40
litres

2 bags for £3.50

3 bags for £9

Which offer is the better value for money?
You must show how you get your answer.

20 litres

2 × 20 = 40 litres for £3.50

40 ÷ 3.50 = 11.4... litres
per £

40 litres

3 × 40 = 120 litres for £9

120 ÷ £9 = 13.3... litres
per £

So, the 40 litre offer is the better
value for money.

(Total for Question 14 is 3 marks)

15 The length of a plane is 19.2 metres.

Lukas buys a scale model of the plane.
The scale of the model is 1 : 24

Work out the length of the scale model of the plane.
Give your answer in centimetres.

$$19.2 \div 24 = 0.8 \text{ metres}$$

$$0.8 \times 100 = 80 \text{ cm}$$

.... 80 .... centimetres

(Total for Question 15 is 3 marks)

16 Maria invests £4500 in a savings account for 3 years.
The account pays simple interest at a rate of 1.8% per year.

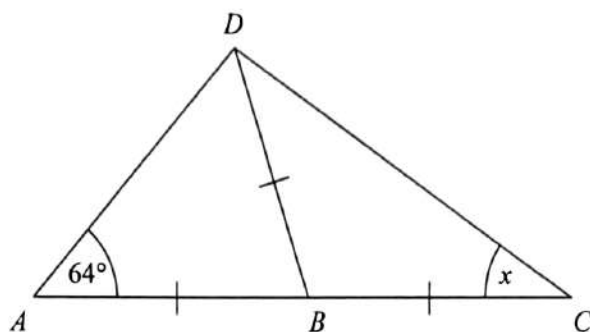Work out the total amount of interest Maria gets by the end of the 3 years.

$$£4500 \times 0.018 = \cancel{£}£81 \text{ after } 1 \text{ year}$$

$$81 \times 3 = £243 \text{ after } 3 \text{ years}$$

£ .... 243 ....

(Total for Question 16 is 2 marks)

ABC is a straight line.
AB = *BC* = *BD*.
Angle *DAB* = 64°

Work out the size of the angle marked *x*.
Give a reason for each stage of your working.

$\angle ADB = 64°$ since triangle ABD is isosceles.

$\angle ABD = 180 - 64 - 64 = 52°$ since angles in a triangle add to 180°

$\angle DBC = 180 - 52 = 128°$ since angles on a straight line add to 180°

$\angle BDC = x$ since triangle DBC is isosceles.

$x = (180 - 128) \div 2 = 26°$ since angles in a triangle add to 180°

(Total for Question 17 is 4 marks)

18 Ben is n years old.
Chloe is twice as old as Ben.
Dan is five years younger than Ben.

The total of Ben's age, Chloe's age and Dan's age is T years.

(a) Find a formula for T in terms of n.

$$T = n + 2n + (n - 5)$$
$$= 4n - 5$$

$T = 4n - 5$

(3)

(b) In the table below, put a tick (✓) in the box next to the identity.

$3h + 2 = 14$	
$3a + 4b - 2c$	
$A = \pi r^2$	
$5m - 3m = 2m$	✓
$x + 7 \leqslant 12$	

(1)

(Total for Question 18 is 4 marks)

P 5 8 8 7 3 A 0 1 3 2 4

19 Here are the ingredients needed to make 16 biscuits.

> **Biscuits**
>
> Ingredients to make **16** biscuits
>
> 175 g of butter
> 75 g of sugar
> 250 g of flour

Anna has

> 500 g of butter
> 300 g of sugar
> 625 g of flour

Work out the greatest number of biscuits Anna can make.

$500 \div 175 = 2.85\ldots$ ~~3~~ batches

$300 \div 75 =$ 4 batches

$625 \div 250 = 2.5$ ~~3~~ batches

The maximum number of batches is

2.5

$2.5 \times 16 = 40$ biscuits

40

20 An estimate of the height, H metres, of a tall building can be found using the formula

$$H = 4f + 12$$

where the building is f floors high.

A tall building is 110 floors high.
The real height of the building is 442 m.

Seb uses the formula to find an estimate of the height of this building.
He then finds the difference between his estimate and the real height.

Show that this difference is less than 5% of the real height.

$$H = 4 \times 110 + 12 = 452 \, m$$

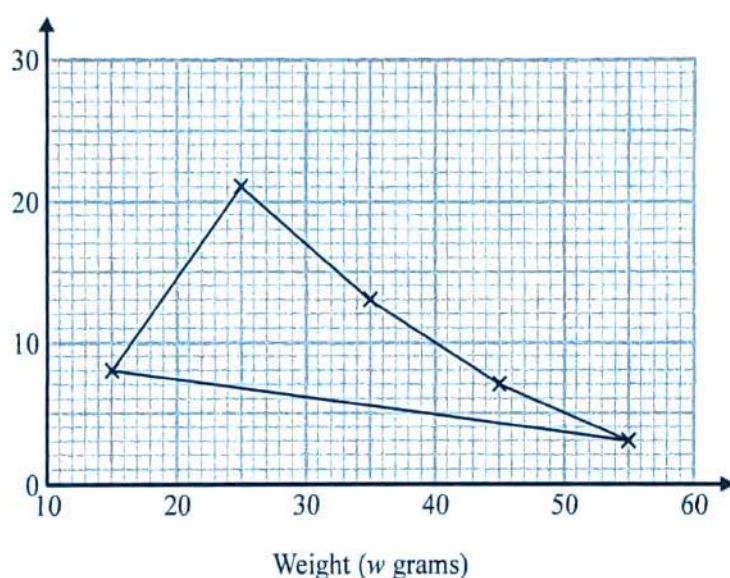$$\frac{452 - 442}{442} \times 100 = 2.26\ldots \, \%$$

which is less than
5%.

(Total for Question 20 is 4 marks)

P 5 8 8 7 3 A 0 1 5 2 4

21 The table shows some information about the weights of 50 potatoes.

Weight (w grams)	Frequency
$10 < w \leqslant 20$	6
$20 < w \leqslant 30$	21
$30 < w \leqslant 40$	13
$40 < w \leqslant 50$	7
$50 < w \leqslant 60$	3

Iveta drew this frequency polygon for the information in the table.
The frequency polygon is **not** fully correct.

Weight (w grams)

Write down **two** things that are wrong with the frequency polygon.

1 ....There is no y-axis label.....

2 ....The polygon should not have the
first and last points connected.....

(Total for Question 21 is 2 marks)

22 The length of a pencil is 128 mm correct to the nearest millimetre.

Complete the error interval for the length of the pencil.

$$127.5 \text{ mm} \leqslant \text{length} < 128.5 \text{ mm}$$

(Total for Question 22 is 2 marks)

---

23 Tom and Adam have a total of 240 stamps.
The ratio of the number of Tom's stamps to the number of Adam's stamps is $3:7$

Tom buys some stamps from Adam.
The ratio of the number of Tom's stamps to the number of Adam's stamps is now $3:5$

How many stamps does Tom buy from Adam?
You must show all your working.

$240 \div (3+7) = 24$ stamps for 1 part

$3 \times 24 = 72$ stamps for ~~Adam~~ Tom.

$240 \div (3+5) = 30$ stamps for 1 part

$3 \times 30 = 90$ stamps for Tom

$90 - 72 = 18$ stamps bought

18

(Total for Question 23 is 4 marks)

P 5 8 8 7 3 A 0 1 7 2 4

24 Each person in a fitness club is going to get a free gift.
Stan is going to order the gifts.

Stan takes a sample of 50 people in the fitness club.
He asks each person to tell him the gift they would like.

The table shows information about his results.

Gift	Number of people
sports bag	17
gym towel	7
headphones	11
voucher	15

There are 700 people in the fitness club.

(i) Work out how many sports bags Stan should order.

$$\frac{17}{50} \times 700 = 238$$

............238............
(2)

(ii) Write down any assumption you made **and** explain how this could affect your answer.

The sample is representative of
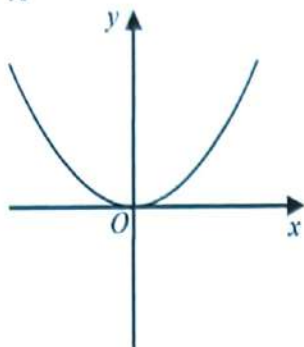the 700 people (the population).
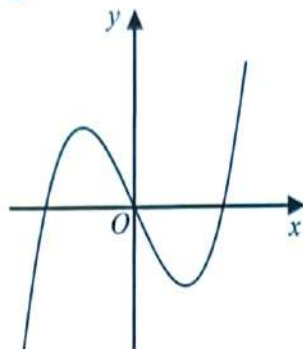
(1)

(Total for Question 24 is 3 marks)

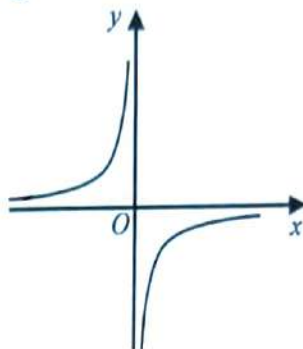**25** Here are six graphs.
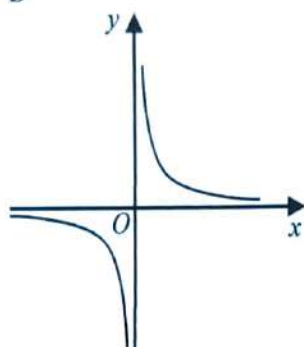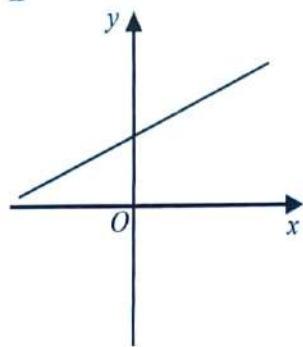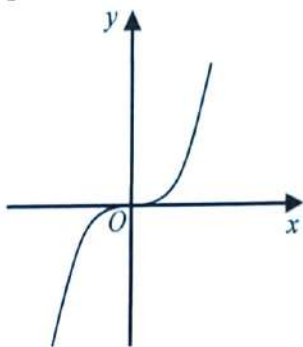
A

B

C

D

E

F

Write down the letter of the graph that could have the equation

(a) $y = x^3$

F

(1)

(b) $y = \dfrac{1}{x}$

D

(1)

(Total for Question 25 is 2 marks)

26 The nth term of a sequence is $2n^2 - 1$

The nth term of a different sequence is $40 - n^2$

Show that there is only one number that is in both of these sequences.

$2n^2 - 1 :$ $\quad 2(1)^2 - 1 = 1$
$\quad\quad\quad\quad\quad 2(2)^2 - 1 = 7 \quad \cdots$

$\quad\quad\quad 1, 7, 17, \boxed{31}, 49, \cdots$

$40 - n^2 :$ $\quad\quad\quad\quad 40 - (1)^2 = 39$
$\quad\quad\quad\quad\quad\quad 40 - (2)^2 = 36 \quad \cdots$

$\quad\quad\quad 39, 36, \boxed{31}, 24, 15, 4, \cdots$

Only 31 is in both sequences.

(Total for Question 26 is 3 marks)

27 Work out $(3.42 \times 10^{-7}) \div (7.5 \times 10^{-6})$
Give your answer in standard form.

$(3.42 \times 10^{-7}) \div (7.5 \times 10^{-6}) = 0.0456$
$\quad\quad\quad\quad\quad\quad\quad\quad\quad\quad = 4.56 \times 10^{-2}$

$\quad\quad\quad\quad\quad\quad\quad\quad 4.56 \times 10^{-2}$

(Total for Question 27 is 2 marks)

28 The number of days, d, that it will take to build a house is given by

$$d = \frac{720}{n}$$

where n is the number of workers used each day.

Ali's company will take 40 days to build the house.
Hayley's company will take 30 days to build the house.

Hayley's company will have to use more workers each day than Ali's company.

How many more?

Ali: $d = \frac{720}{40} = 18$ workers
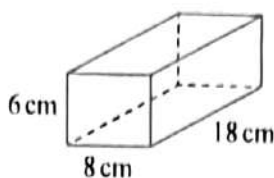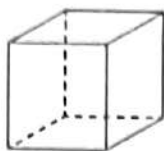
Hayley: $d = \frac{720}{30} = 24$ workers

$24 - 18 = 6$ workers more

6

(Total for Question 28 is 3 marks)

29 The diagram shows a cube and a cuboid.

6 cm
18 cm
8 cm

The total surface area of the cube is equal to the total surface area of the cuboid.

Janet says,

"The volume of the cube is equal to the volume of the cuboid."

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

Surface area of cuboid

$= 2 \times (6 \times 8) + 2 \times (6 \times 18) + 2 \times (8 \times 18)$

$= 600 \text{ cm}^2$

Surface area of cube $= 600 \text{ cm}^2$

Area of one face $= 600 \div 6 = 100 \text{ cm}^2$

Side length $= \sqrt{100} = 10 \text{ cm}$

Volume of cube $= 10 \times 10 \times 10$

$= 1000 \text{ cm}^3$

Volume of cuboid $= 6 \times 8 \times 18$

$= 864 \text{ cm}^3$

So no, Janet is not correct.

(Total for Question 29 is 5 marks)

P 5 8 8 7 3 A 0 2 2 2 4

30 Here are two column vectors.

$$a = \begin{pmatrix} 5 \\ 2 \end{pmatrix} \qquad b = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$$

On the grid below, draw and label the vector $a - 2b$

$$\underline{a} - 2\underline{b} = \begin{pmatrix} 5 \\ 2 \end{pmatrix} - 2\begin{pmatrix} 3 \\ -1 \end{pmatrix} = \begin{pmatrix} 5 \\ 2 \end{pmatrix} - \begin{pmatrix} 2+3 \\ 2\times-1 \end{pmatrix}$$

$$= \begin{pmatrix} 5 \\ 2 \end{pmatrix} - \begin{pmatrix} 6 \\ -2 \end{pmatrix}$$

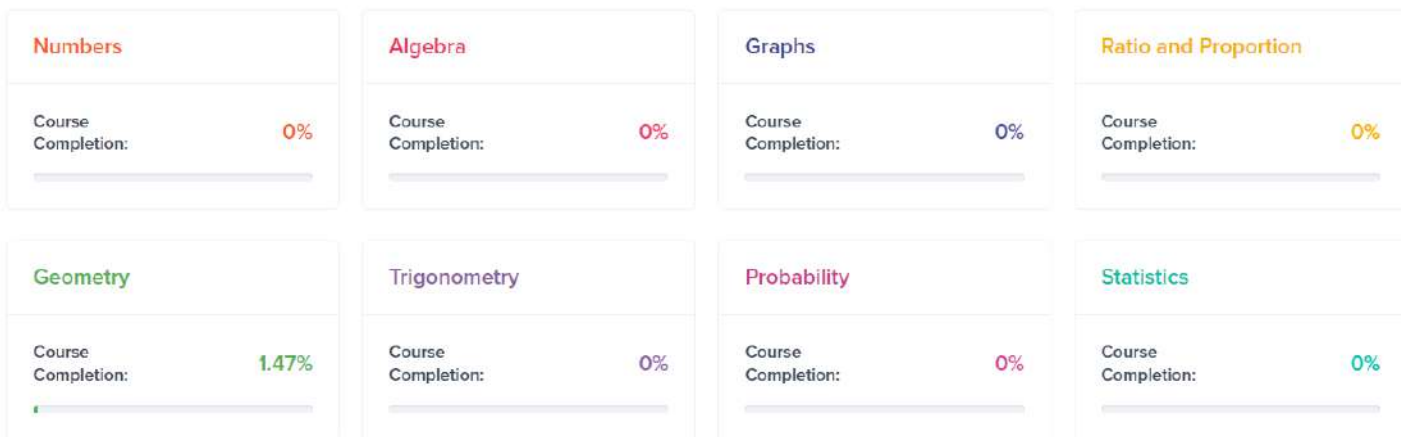$$= \begin{pmatrix} 5-6 \\ 2-(-2) \end{pmatrix} = \begin{pmatrix} -1 \\ 4 \end{pmatrix}$$
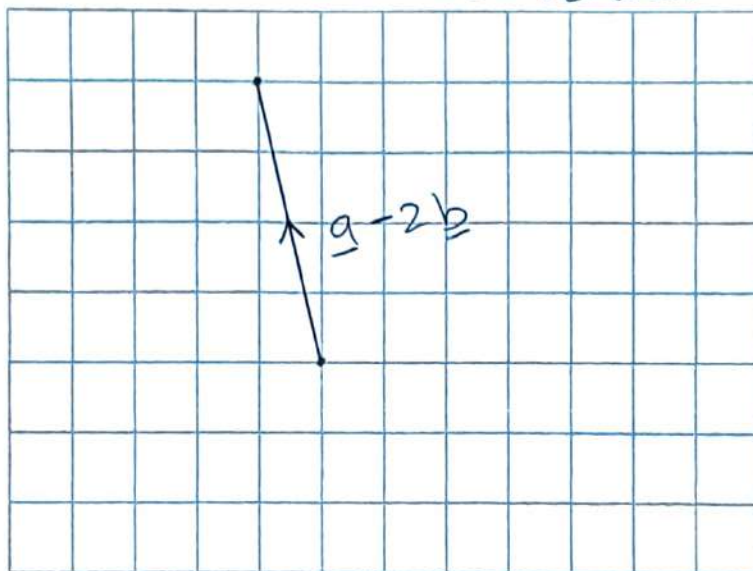
(Total for Question 30 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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Track your progress through the course and your performance on practice questions

AVERAGE SCORE

Practice Questions

77% → -4%

Calculate the following:

$$\frac{(15-3)}{2} \div 3$$

0% Completed

2. Algebra
0% Completed

3. Graphs
0% Completed

3.1 Gradients of Straight Line Graphs

3.2 y=mx+c

3.3 Coordinates and Midpoints

3.4 Drawing Straight Line Graphs

3.5 Parallel Lines

Item	Status	Latest Result
▶ Revision	Incomplete	-
❓ Practice Tests	0/3 Complete	-
📄 Online Exam	Incomplete	-

3.6 Quadratic and Cubic Graphs

3.7 Turning Points of Quadratic Graphs

3.8 Circle Graphs and Tangents

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