Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

EDEXCEL Mock Test Papers

paper2 -Test1

Mathematics
PAPER 2 (Calculator)
Higher Tier

2H

Morning (Time: 1 hour 30 minutes)

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 (a) Work out the value of $\frac{36 + \sqrt{9.9}}{6.02 \times 4.2}$

Write down all the figures on your calculator display.

.....

(2)

(b) Work out the value of the reciprocal of 0.850

.....

(1)

(Total for Question 1 is 3 marks)

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2 Write 120 as a product of its prime factors.

.....

(Total for Question 2 is 2 marks)

3 There are 90 marbles in a jar.
The marbles are either green or yellow.

number of green marbles : number of yellow marbles = 2 : 3

Ryan says,

"There are 45 green marbles because 2 is half of 3, and 45 is half of 90."

Is Ryan correct?
You must give a reason for your answer.

.....

.....

.....

(Total for Question 3 is 1 mark)

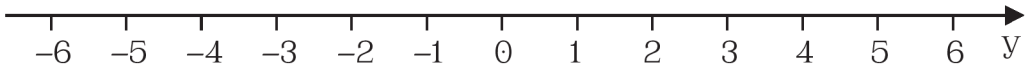
4 $-3 \leqslant x < 6$, where x is an integer.

(a) Write down the smallest possible value of x.

.....

(1)

(b) On the number line below, show the inequality $-5 < y \leqslant 2$



(2)

(c) Solve $-11k - 9 < 13$

.....

(3)

(Total for Question 4 is 6 marks)

5 The diagram shows a 6-sided shape made from a rectangle and a right-angled triangle.

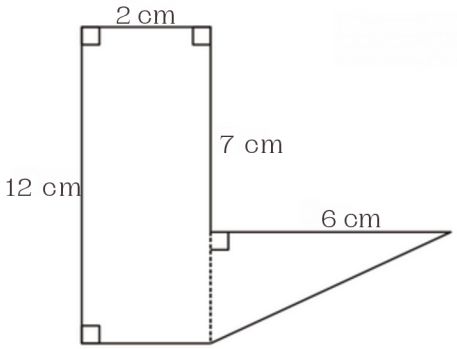


Diagram NOT accurately drawn

Work out the total area of the 6-sided shape

.....cm^2

(Total for Question 5 is 3 marks)

6 Ivy and Mary share some money in the ratio 2 : 3
Mary gets £800
Work out how much money Ivy gets.

.....

(Total for Question 6 is 3 marks)

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7 A number, d, is rounded to 1 decimal place.
The result is 15.6

Complete the error interval for d.

..... ≤ d < .....

(Total for Question 7 is 2 marks)

8 James invests £2500 for 3 years in a savings account.
He gets 3% per annum compound interest in the first year, then x% for 2 years.
James has £2705.36 at the end of 3 years,
work out the value of x .

.....

(Total for Question 8 is 4 marks)

9 Ali is measuring the heights in cm of his friends.

Height (cm)	Frequency
$140 < h \leqslant 150$	7
$150 < h \leqslant 160$	10
$160 < h \leqslant 170$	15
$170 < h \leqslant 180$	19
$180 < h \leqslant 200$	9

(a) Estimate the mean height.
Give your answer correct to 1 decimal place

(3)

(b)Explain why your answer to part (a) is an estimate.

(Total for Question 9 is 4 marks)

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10 A biased spinner can land on 1, 2, 3 or 4.

The table shows the probabilities that the spinner will land on 2 and 4.

Number	1	2	3	4
Probability		0.32		0.17

The probability that the spinner will land on 1 is twice the probability that the spinner will Land on 3.

(a) Complete the table.

.....

(2)

Amelia is going to spin the spinner 200 times.

(b) Work out an estimate for the number of times the spinner will land on 2.

.....

.....

.....

(2)

(Total for Question 10 is 4 marks)

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11 Use algebra to solve the simultaneous equations

$$3x + 4y = 10$$
$$5x - 6y = -14$$

x = ...

y = ...

(Total for Question 11 is 4 marks)

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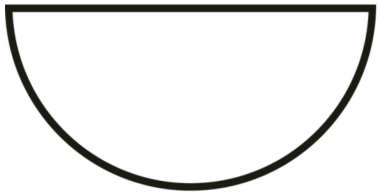
12 A semi-circle has an area of 50 m^2.

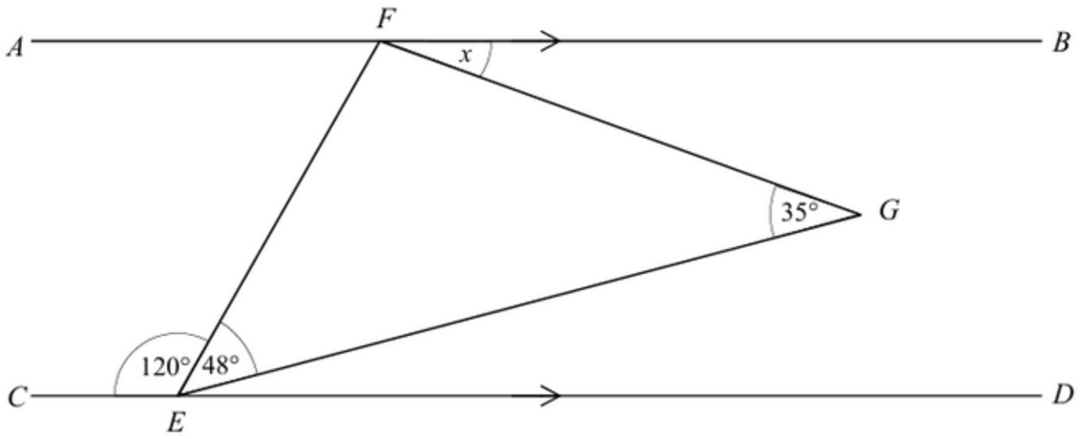


Find the perimeter of the semi-circle.
Give your answer correct to one decimal place.

..... m

(Total for Question 12 is 4 marks)

13



AB and CD are parallel.
Find the size of angle x.
Give a reason for each stage of your working.

°

.....

(Total for Question 13 is 4 marks)

14 Write $\frac{3x^2 + 11x - 4}{x^2 + 3x - 4}$ in the form $\frac{ax + b}{cx + d}$ where a, b, c are integers.

(Total for Question 14 is 3 marks)

15 Here are the first four terms of a quadratic sequence.

2 7 14 23

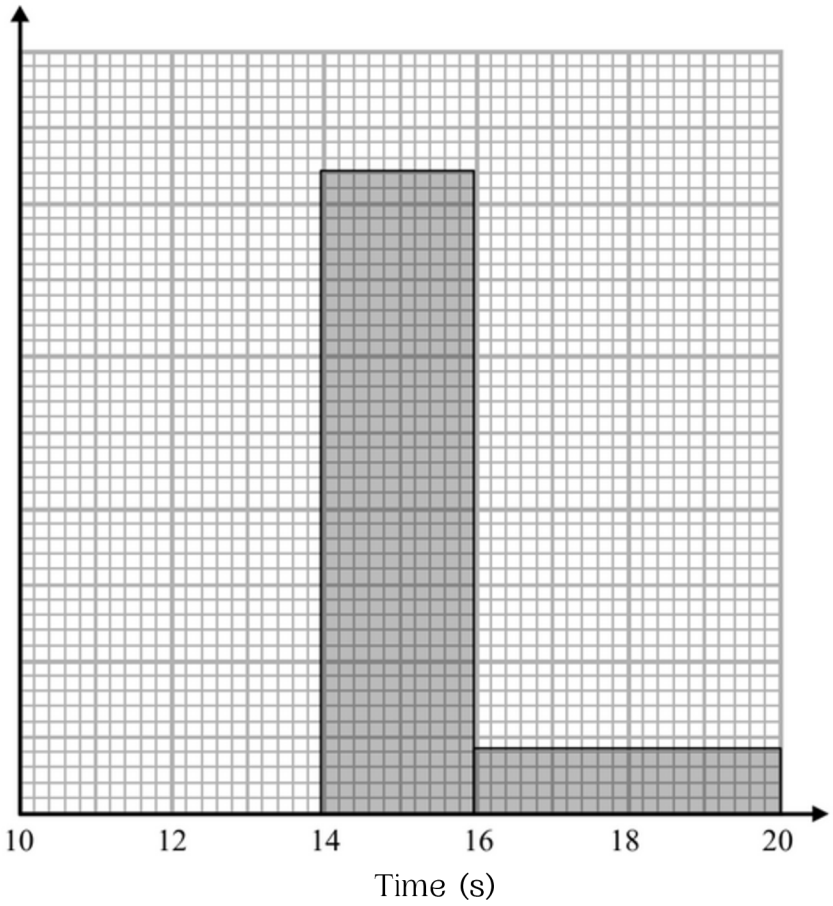
Find an expression, in terms of n, for the nth term of this sequence.

.....

(Total for Question 15 is 3 marks)

16 The table shows information about the time, in seconds, taken for some people to run a 100m race.

Time (s)	Frequency
$10 < t \leqslant 12$	6
$12 < t \leqslant 13$	21
$13 < t \leqslant 14$	23
$14 < t \leqslant 16$	
$16 < t \leqslant 20$	8



(a) Use the information on the table to complete the histogram.

(2)

(b) Use the histogram to complete the table.

(2)

(Total for Question 16 is 4 marks)

17 Using $X_{n+1} = 1 + \frac{1}{X_n^2}$

With $x_0 = 2$

(a) Find the values of x_1, x_2 and x_3

(3)

(b) Explain the relationship between the values of x_1, x_2 and x_3 and the equation

$x^3-x^2-1=0$

.....

(2)

(Total for Question 17 is 5 marks)

18 Given that

$$x - 1 : 2x - 3 = x + 2 : 3x - 2$$

Find the possible values of x.

(Total for Question 18 is 4 marks)

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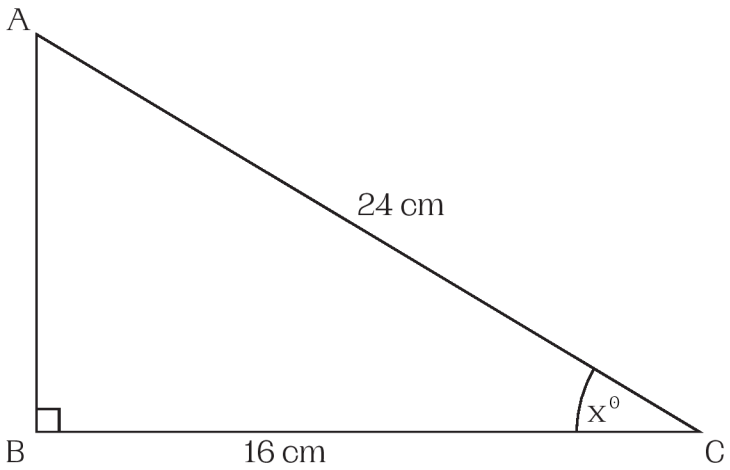
19



Work out the value of x.

.

.....°

(Total for Question 19 is 2 marks)

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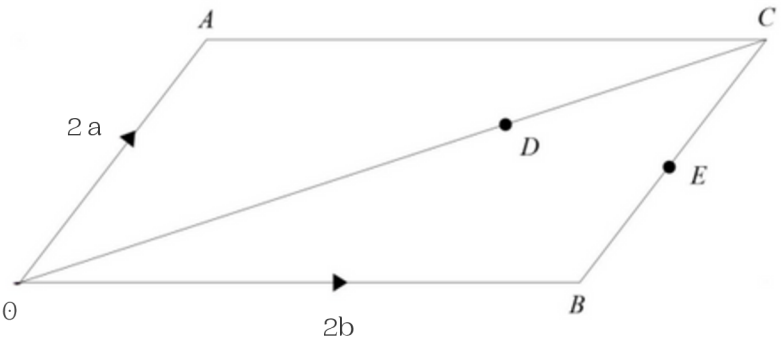
20 The diagram shows a parallelogram.



$\overrightarrow{OA} = 2a$

$\overrightarrow{OB} = 2b$

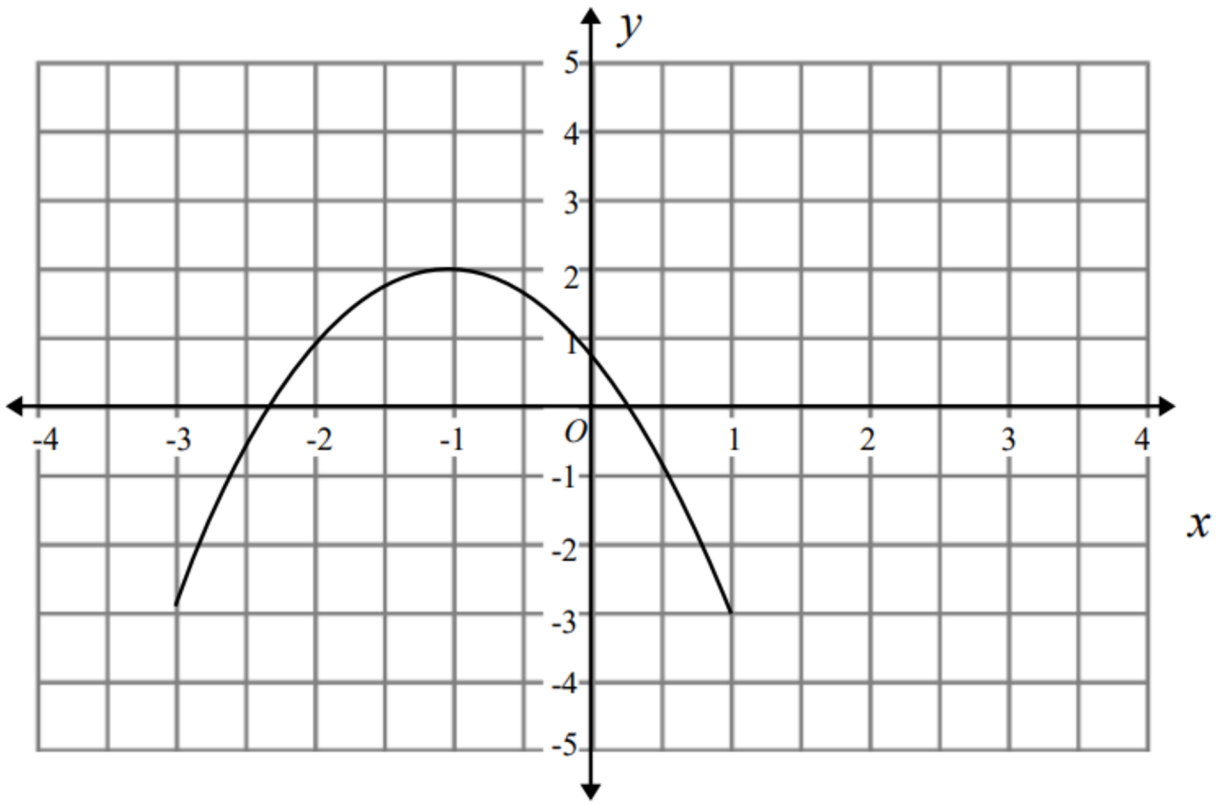
D is the point on OC such that OD:DC = 2:1
E is the midpoint of BC

Show that A, D and E are on the same straight line.

.....

(Total for Question 20 is 4 marks)

21 The graph of $y = f(x)$ is shown on the grid



(a) On the grid above, sketch the graph of $y = f(x - 1)$

(1)

The graph of $y = f(x)$ has a turning point at $(-1, 2)$.

(b) Write down the coordinates of the turning point of $y = f(-x) + 2$

(1)

(Total for Question 21 is 2 marks)

22 There are 53 counters in a bag.

15 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.

.....

(Total for Question 22 is 2 marks)

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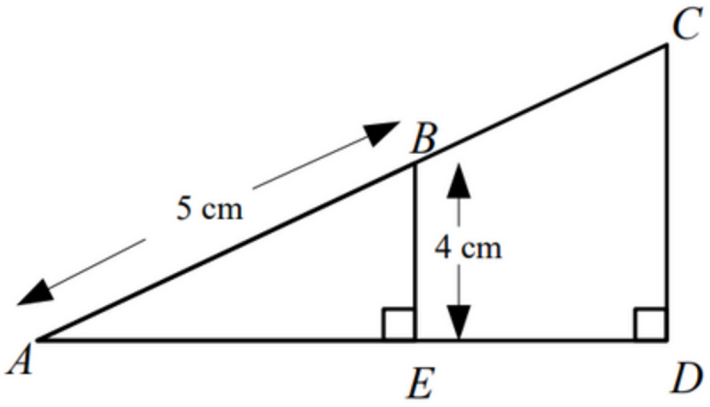
23



AB: AC = 1: 3

(a) Calculate the length of CD

.....

(2)

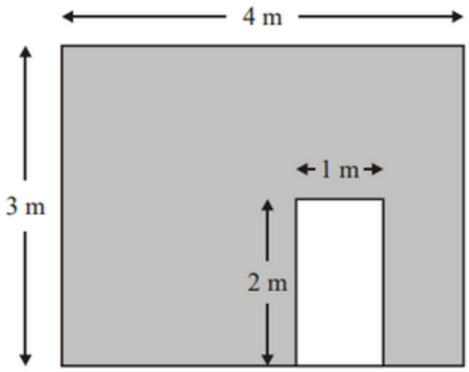
(b) Calculate the length of BC.

.....

(2)

(Total for Question 23 is 4 marks)

24 The diagram shows a wall with a door in it.



not drawn accurately

Work out the shaded area

..... m2

(Total for Question 24 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

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