

Every Topic on the Edexcel
2022 Advanced Information
Practice Booklet
Paper 1 (Non-Calculator)

Higher Tier



GCSE
Maths Tutor



How it all Works!

Work through the practice booklet,
scan the code, watch the live
tutorial and check your answers!

Try it out!

Disclaimer: There is no guarantee that any specific topic will be examined this way in the summer and you cannot rely on this as your only source of revision. Please visit the YouTube channel for in depth lessons on each of the topics within this document along with any recommended revision that has been instructed by your education provider.

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Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages of your working.

1. $\frac{3}{5}$ of a number is 48.

Work out the number.

.....
(2 marks)

2. a) Work out $3\frac{4}{5} + \frac{3}{7}$

Give your answer as a mixed number in its simplest form.

.....
(3 marks)

b) Work out $1\frac{1}{5} \div \frac{3}{4}$

Give your answer as a mixed number in its simplest form.

.....
(3 marks)

3. Write $0.\dot{4}\dot{7}$ as a fraction in its simplest form.

.....
(3 marks)

4. Express 525 as a product of prime factors.

Give your answer in index form.

.....
(3 marks)

5. a) Work out the value of $25^{-\frac{1}{2}}$

.....
(2 marks)

b) Work out the value of $\left(\frac{8}{27}\right)^{\frac{2}{3}}$

.....
(2 marks)

6. a) Write $\sqrt{80}$ in the form $k\sqrt{5}$, where k is an integer.

b) Simplify $\sqrt{40} + \sqrt{90}$

.....
(2 marks)

.....
(2 marks)

7. a) Write 5600 in standard form

.....
(1 mark)

b) Write 0.0034 in standard form

.....
(1 mark)

8. a) Write 2.3×10^5 as an ordinary number

.....
(1 mark)

b) Write 8.04×10^{-3} as an ordinary number

.....
(1 mark)

9. a) Work out $(4 \times 10^5) \times (3 \times 10^{-2})$

Give your answer in standard form.

.....
(2 marks)

b) Work out $(3 \times 10^3) \div (6 \times 10^{-2})$

Give your answer in standard form.

.....
(2 marks)

10. a) Simplify $12x^2 + 5x - 3x^2 - 2x$

.....
(1 mark)

b) Expand and Simplify $3(2x - 4) - 2(x + 5)$

.....
(2 marks)

11. a) Simplify fully $\frac{x+2}{(x+2)^2}$

.....
(1 mark)

b) Simplify fully $\frac{3x^2+11x-4}{x^2-16}$

.....
(3 marks)

12. Simplify fully $\frac{8}{x+3} + \frac{3}{x+8}$

.....
(2 marks)

13. Simplify fully $\frac{3x+6}{x-4} \div \frac{2x^2+9x+10}{x^2-4x}$

.....
(3 marks)

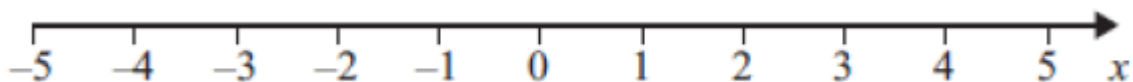
14. Amy has some sweets.
Bethany has twice as many as Amy.
Charlie has 5 more sweets than Bethany.
In total they have 55 sweets.
How many sweets does Charlie have?

.....
(3 marks)

15. a) Solve the inequality $6x + 1 \geq 2x + 11$

b) Show your solution to part (a) on the number line.

.....
(2 marks)



(2 marks)

16. Solve $x^2 - 2x = 15$

.....
(2 marks)

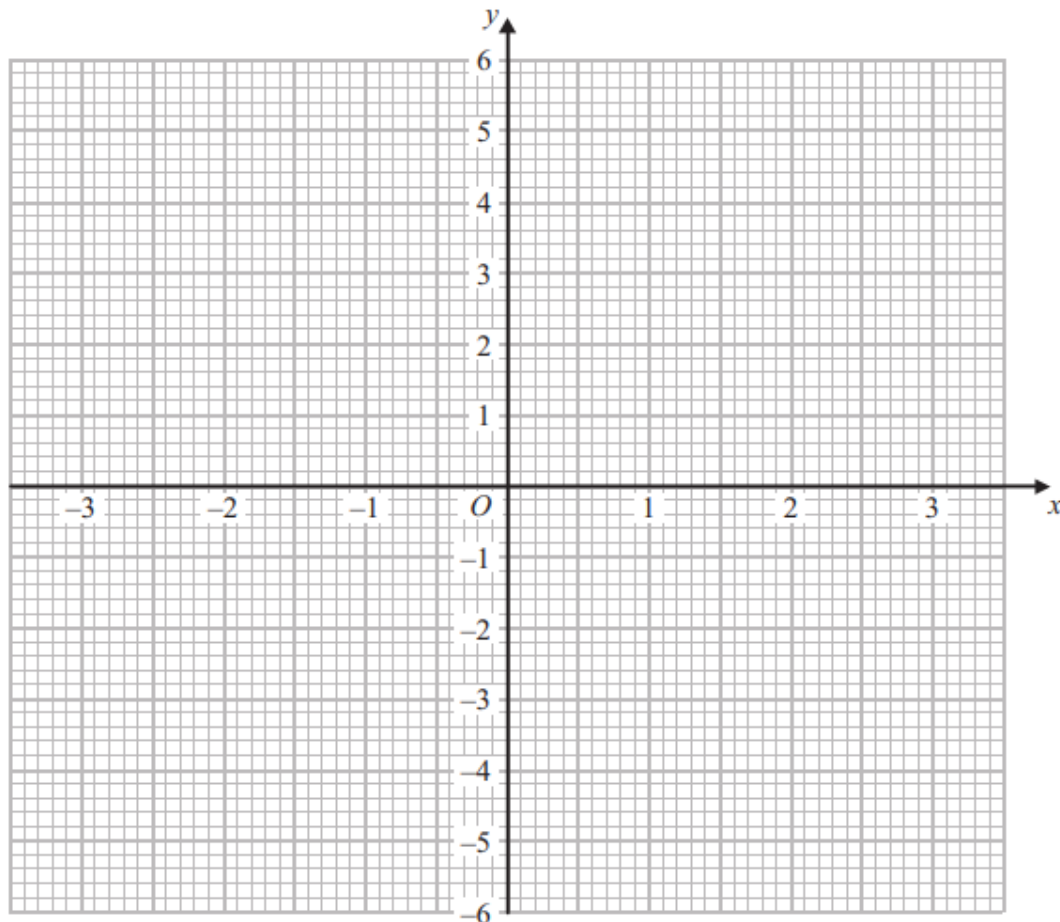
17. Find the equation of the tangent to the circle with equation
 $x^2 + y^2 = 5$ at the point (1,2)

.....
(4 marks)

18. a) Complete the table of values for $y = x^2 - 4$

x	-3	-2	-1	0	1	2	3
y		0	-3			0	

b) On the grid, draw the graph of $y = x^2 - 4$ for $x = -3$ to $x = 3$



(4 marks)

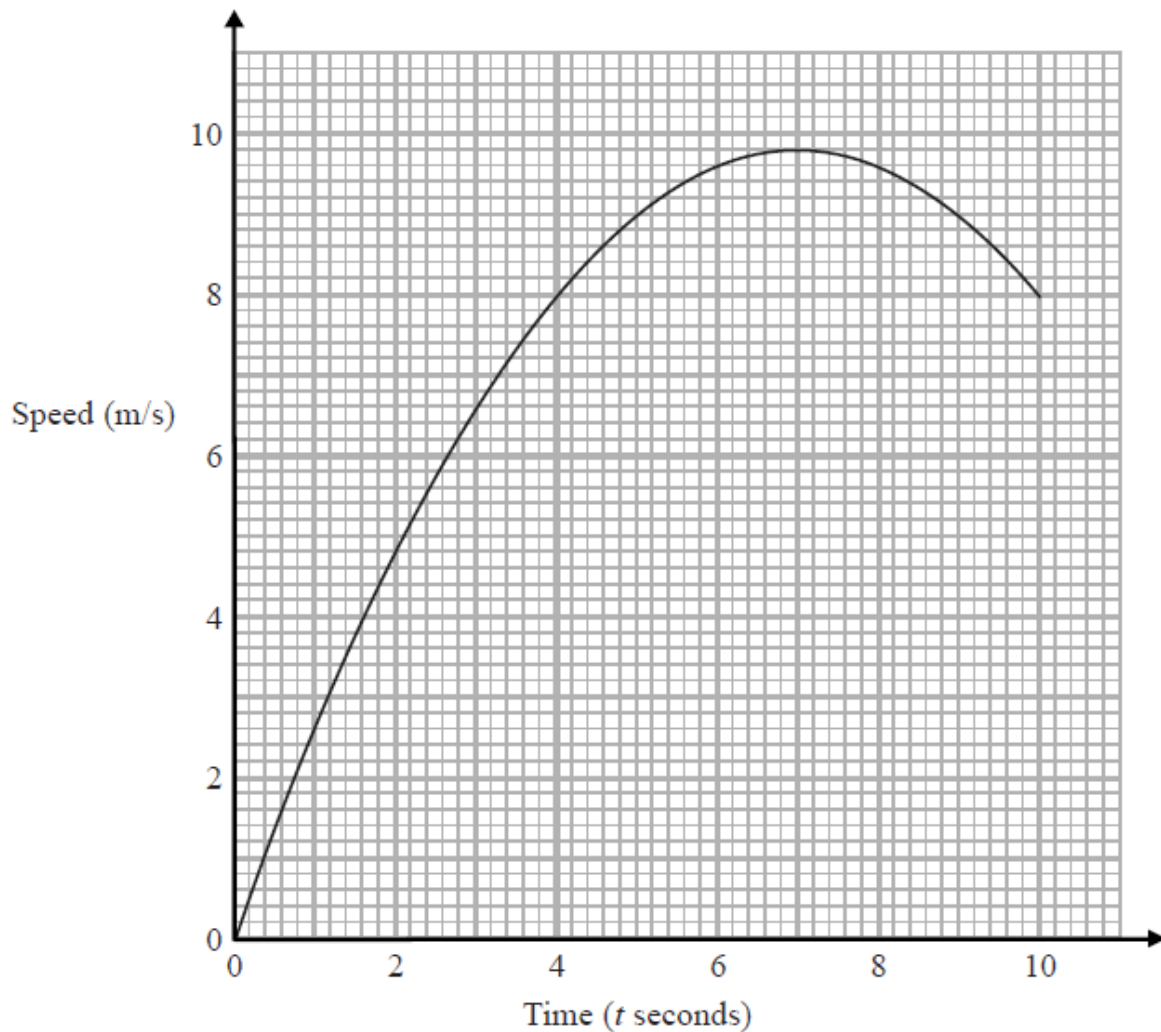
19. Here are the equations of four straight lines.
Two of the lines are perpendicular, which two?

- A) $2y = x + 1$
- B) $y - 2x = 4$
- C) $3y = 6x + 5$
- D) $y + 2x = 3$

.....
(2 marks)

20. Karol runs a race.

The graph shows her speed, in metres per second, t seconds after the start of the race.



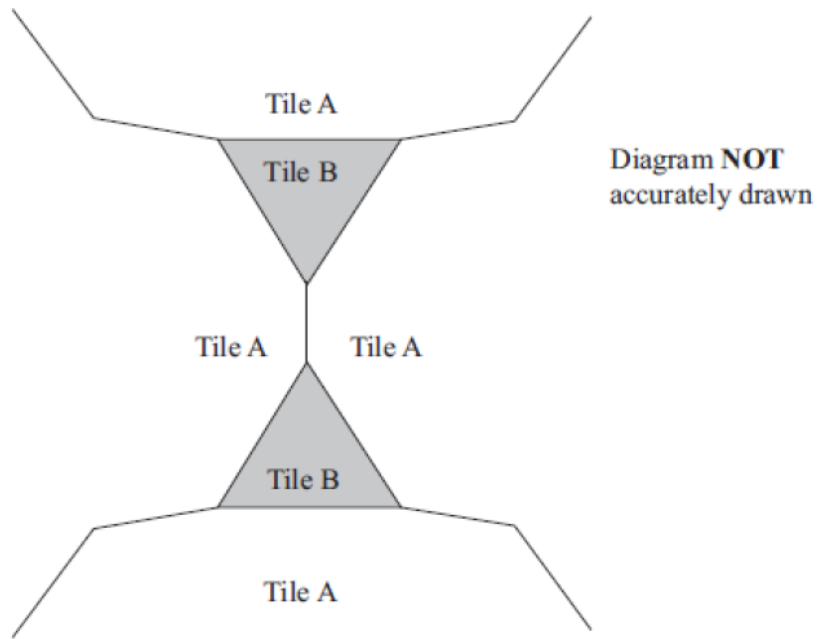
a) Calculate an estimate for the gradient of the graph when $t=4$.

You must show how you get your answer.

b) Describe fully what your answer to part (a) represents.

(5 marks)

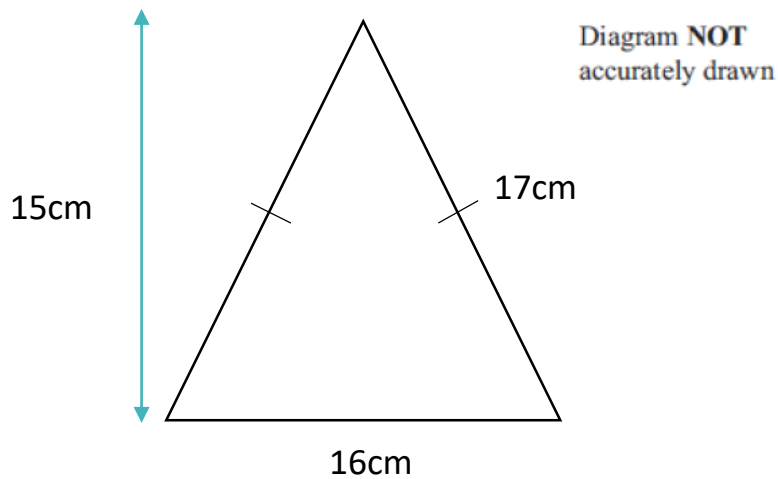
21. The diagram shows a pattern made by two regular polygons.



Work out how many sides tile A has.

.....
(4 marks)

22. Work out the area of the triangle.



.....
(1 mark)

23. The diagram shows a sector of a circle radius 7cm.

Work out the area of the sector.

Give your answer in terms of π .

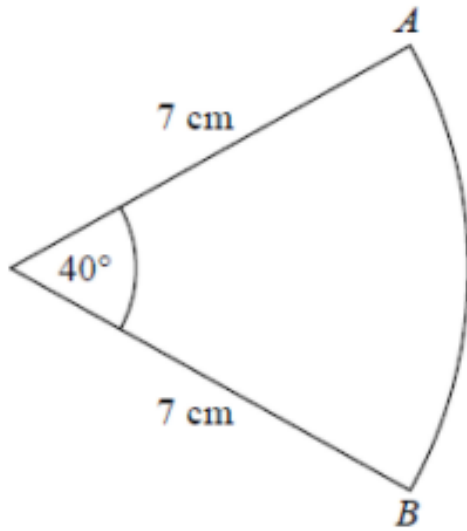


Diagram NOT accurately drawn

.....
(3 marks)

24. Work out the total surface area of the cuboid.

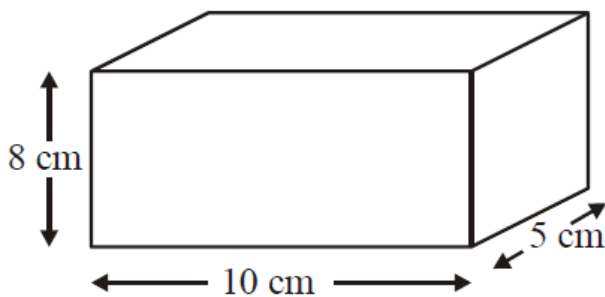


Diagram NOT accurately drawn

.....
(3 marks)

25. Work out the volume of the cuboid.

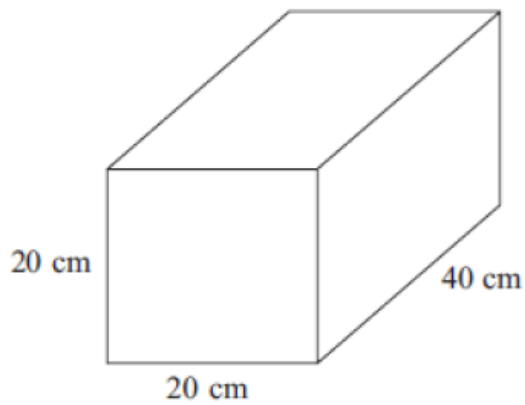
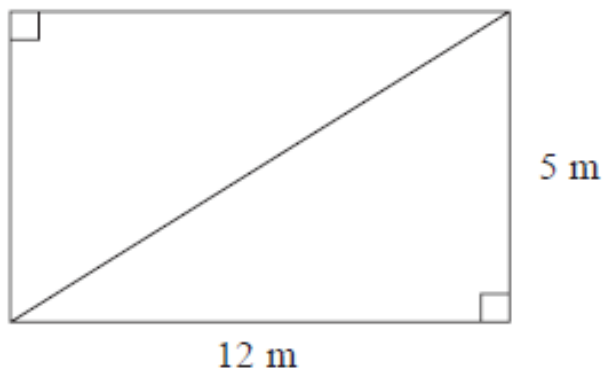


Diagram **NOT** accurately drawn

.....
(2 marks)

26. A rectangular frame is made from 5 straight pieces of metal.
Work out the total length of the metal needed in the frame.



.....
(3 marks)

27. Find the exact value of $\tan 30^\circ \times \sin 60^\circ$

Give your answer in its simplest form

.....
(3 marks)

28.

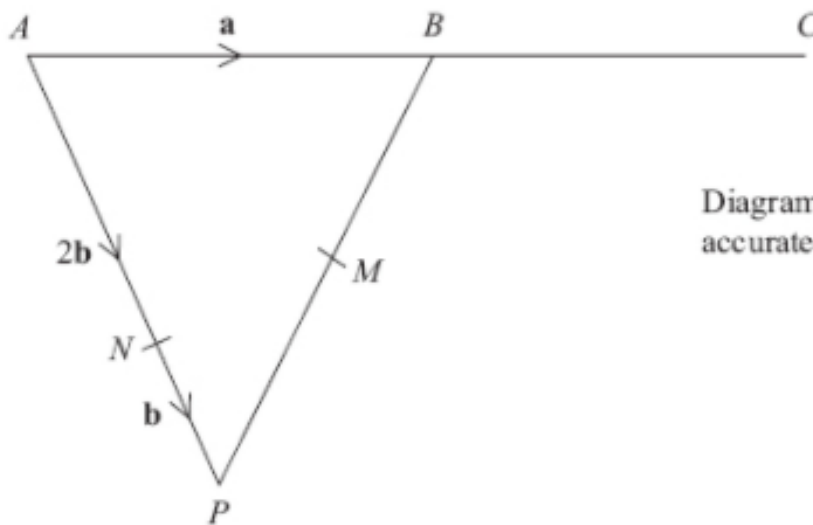


Diagram **NOT**
accurately drawn

APB is a triangle.

N is a point on AP.

B is the midpoint of AC

M is the midpoint of PB

Show that NMC is a straight line.

.....
(3 marks)

29. Work out 12.5% of 160

.....
(1 mark)

30. Alice and James share £80 in the ratio 3:2
Work out how much money they each receive.

.....
(2 marks)

31. Tom and Amy share some money in the ratio 5:3
Tom gets £70 more than Amy.
Work out how much they each receive.

.....
(2 marks)

32. 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.

.....
(3 marks)

33. Maria, Dylan and Kate share £3000

The ratio of the amount Maria gets to the amount Dylan gets is in the ratio 5:4

Kate gets 1.5 times the amount Dylan gets.

Work out the amount of money that Dylan gets.

.....
(3 marks)

34. Only blue vans and white vans are made in a factory.

The ratio of the number of blue vans to the number of white vans is 4:3

For the blue vans, the number of small vans : the number of large vans = 3:5

Work out the fraction of the number of vans made in the factory that are blue and large.

.....
(3 marks)

35. y is inversely proportional to d^2
When $d=10$, $y=4$

d is directly proportional to x^2
when $x=2$, $d=24$

Find a formula for y in terms of x .
Give your answer in its simplest form.

.....
(5 marks)

36. A rubber cube has side lengths of 4cm.
The density of rubber is 1.5g/cm^3
Work out the mass of the cube.

.....
(3 marks)

37. In a bag there are only red, blue, yellow and green counters.

A counter is taken at random from the bag.

The table shows the probability of getting each coloured counter.

Colour	Red	Blue	Yellow	Green
Probability	0.3	0.25	0.15	

There are 45 green counters in the bag.

Work out the total number of counters in the bag.

.....
(3 marks)

38. James has a bag of counters. In the bag there are 4 red counters and 5 blue counters. James takes at random a counter from the bag and notes its colour. He then puts the counter back in the bag and takes at random a second counter.

Work out the probability that James takes two different coloured counters.

.....
(4 marks)

39. Hannah is going to play one game of darts and one game of snooker.
The probability that she will win at darts is 0.3
The probability that she will win at snooker is 0.4

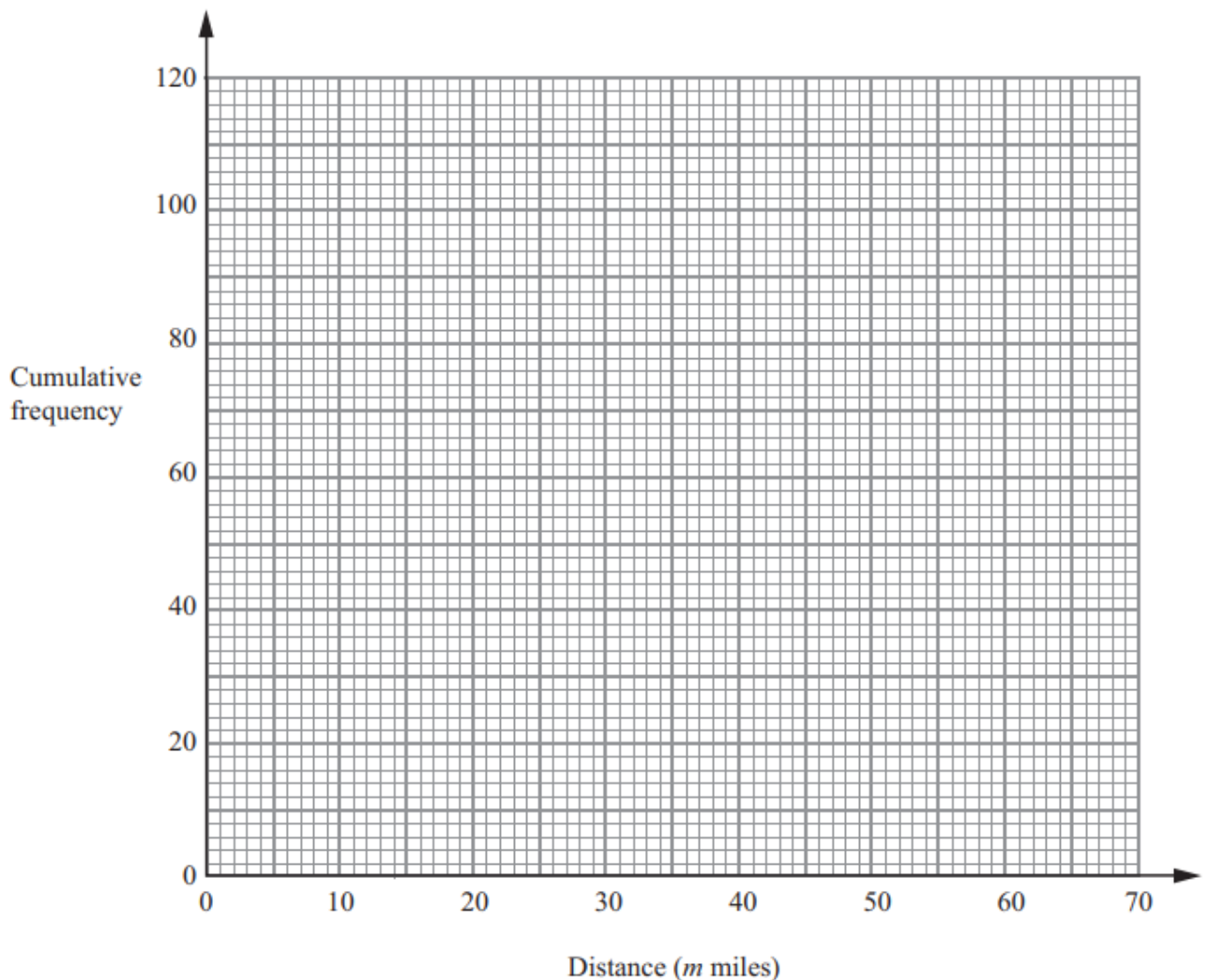
Work out the probability that Hannah will win at least one game.

.....
(3 marks)

40. James records the number of hours he spends driving one week. His information is shown in the table.

Distance (m miles)	Frequency
$0 < m \leq 10$	4
$10 < m \leq 20$	18
$20 < m \leq 30$	24
$30 < m \leq 40$	40
$40 < m \leq 50$	24
$50 < m \leq 60$	10

- a) Draw a cumulative frequency graph.



- b) Use your graph to find an estimate for the interquartile range.

.....
(5 marks)

41. There are 10 boys and 20 girls in a class.
The class has a test.

The mean mark for all the class is 60.
The mean mark for the girls is 54.

Work out the mean for the boys.

.....
(3 marks)

End of Paper