1st Class Maths

Video Solutions

SCAN ME

PRACTICE PAPER FOR

Edexcel Paper 1H

(June 2024)

---------- Disclaimer ----------

This paper has been created based on the **most common** paper 1 topics from previous years. Due to the nature of some topics they are better suited to paper 1 as if you had a calculator, they would no longer be difficult to do. The paper should be excellent at helping students revise for exams, however, should not be relied upon as the basis for revision. The topics from this paper may well appear in the real exams, however there is absolutely no guarantee of this for the reasons previously mentioned. Some topics may appear, some may not.

Ultimately the best way to prepare for the exams is to **revise all topics**.

You can find a link to this paper and many more completely free resources at www.1stclassmaths.com

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Answer ALL questions

Write your answers in the spaces provided

You must write down all the stages in your working.

1 Work out $3\frac{1}{2} + 1\frac{2}{3}$

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

.....

(Total for Question 1 is 3 marks)

2 (a) Simplify $\frac{20p^8q^5}{4p^2q^{-1}}$

.....

(2)

(b) Write 8×2^{10} as a power of 2

.....

(2)

(Total for Question 2 is 4 marks)

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

red counters : blue counters : green counters = 1 : 2 : 5

A counter is taken at random from the bag and then replaced.
This is repeated a total of 200 times.

(a) Work out an estimate for the number of times a green counter was taken from the bag.

.....

(2)

Miles estimates that the total number of counters in the bag is 100.

(b) Explain why Miles must be incorrect.

.....

.....

(1)

(Total for Question 3 is 3 marks)

4 $6845 = 5 \times 37^2$

Express 68 450 as a product of its prime factors.

.....

(Total for Question 4 is 2 marks)

5 The table shows information about the amount of time 25 students spent on homework.

Time spent on homework, *m* (minutes)	**Frequency**
$0 \leq m < 10$	6
$10 \leq m < 20$	6
$20 \leq m < 30$	10
$30 \leq m < 40$	3

(a) Find the class interval that contains the median.

.....

(1)

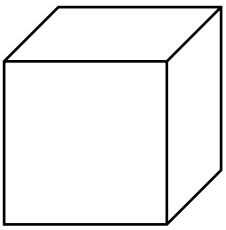
(b) Work out an estimate for the mean amount of time spent on homework by the students.

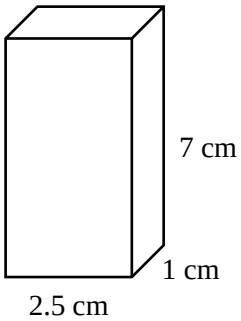
..... minutes

(3)

(Total for Question 5 is 4 marks)

6 Here is a cube and a cuboid.





The length of each edge of the cube is w cm.

The cube and the cuboid have the same surface area.

Work out the value of w.

$w =$ .....

(Total for Question 6 is 4 marks)

7 Work out an estimate for the value of $\dfrac{0.413 \times 0.309}{0.0051}$

.....

(Total for Question 7 is 3 marks)

8 (a) Factorise $a^2 - 4$

.....

(1)

(b) Make h the subject of $\frac{h}{x} - n = e$

.....

(2)

(Total for Question 8 is 3 marks)

9 The table shows the equations of six straight lines.

Line	Equation
A	$y = 3x - 6$
B	$y = -3x - 6$
C	$y = 6x - 3$
D	$y = \frac{1}{3}x - 6$
E	$2y = 6x + 6$

(a) Write down the letters of the two lines that are parallel.

..... and .....

(1)

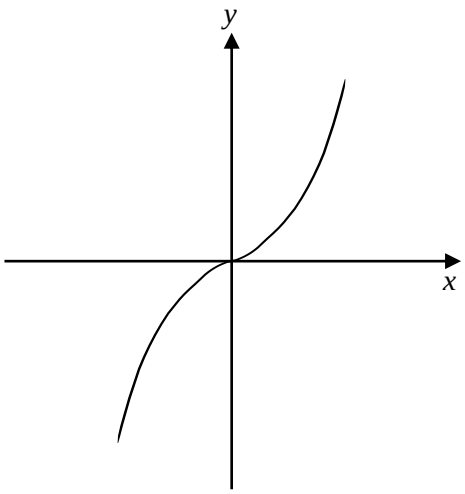
(b) Write down the letters of the two lines that are perpendicular.

..... and .....

(1)

(Total for Question 9 is 2 marks)

10 Evie sketches the graph of $y = x^2$



(a) Write down one thing that is wrong with Evie's sketch.

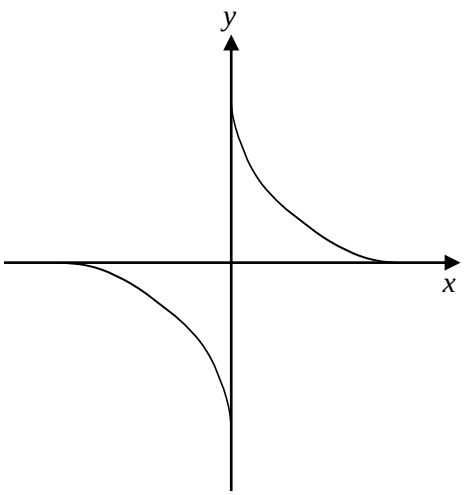
.....

.....

.....

(1)

Leah sketches the graph of $y = \frac{1}{x}$



(b) Write down one thing that is wrong with Leah's sketch.

.....

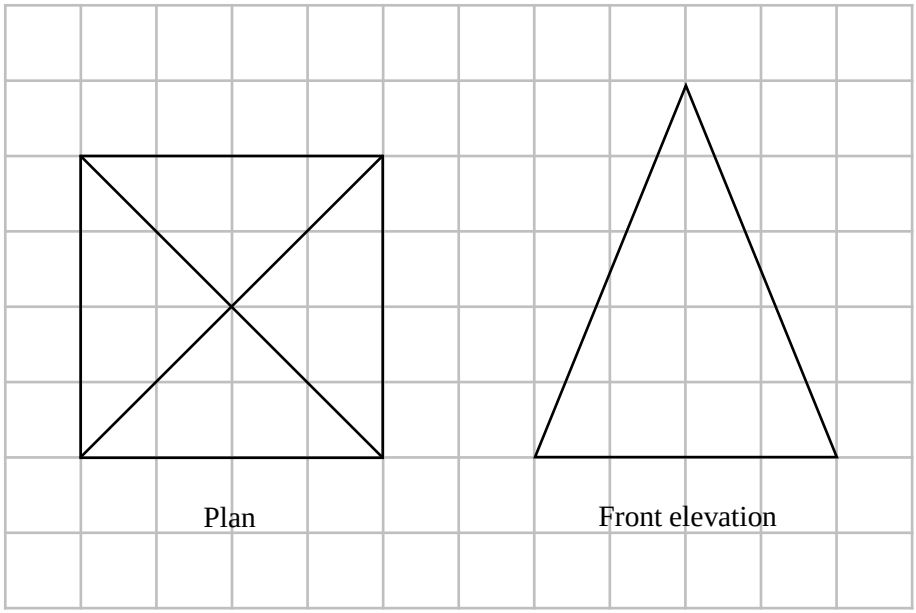
.....

.....

(1)

(Total for Question 10 is 2 marks)

11 The diagram shows the plan and front elevation of a square based pyramid, drawn on a centimetre grid.



Work out the volume of the pyramid giving your answer as a mixed number in its simplest form.

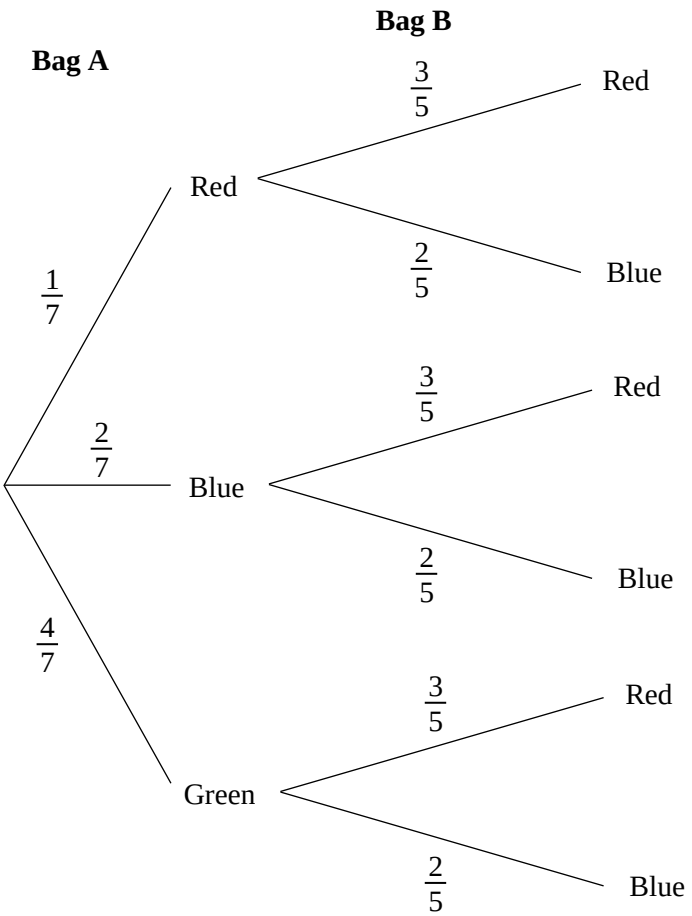
..... cm^3

(Total for Question 11 is 3 marks)

12 Bag A contains only red counters, blue counters and green counters.
Bag B contains only red counters and blue counters.

Rachael takes one counter from bag A and one counter from bag B.

The probability tree diagram shows the probabilities of Rachael's selections.

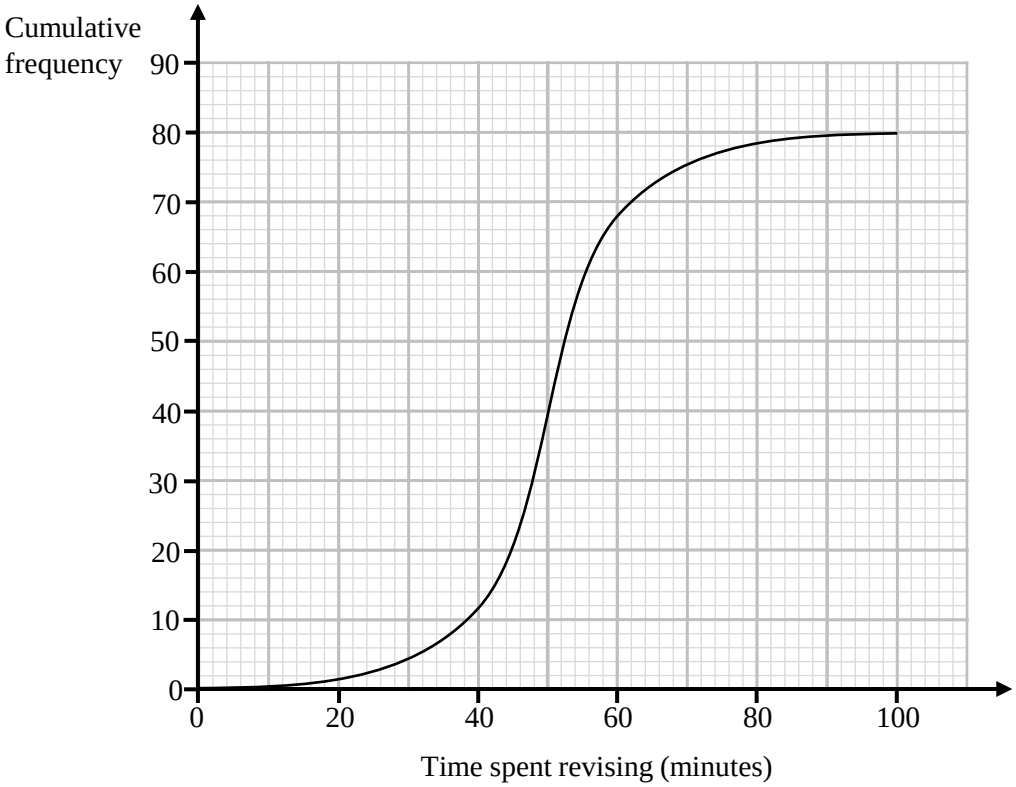


Work out the probability that at least one of the counters selected by Rachael is red.

.....

(Total for Question 12 is 3 marks)

13 The cumulative frequency graph shows some information about the amount of time 80 Year 11 students spent revising for their maths test.



One of the Year 11 students is selected at random.

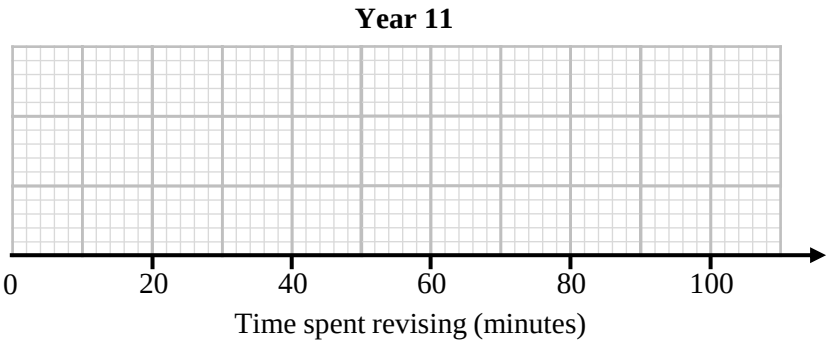
(a) Use the graph to find an estimate for the probability that the student revised for more than 1 hour.

.....

(2)

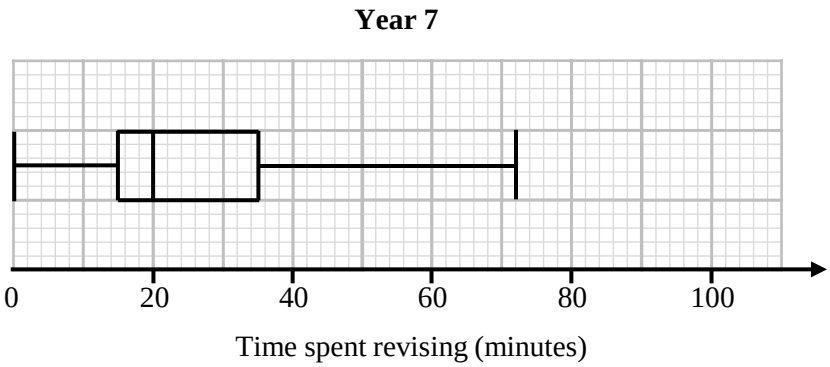
The lowest amount of time spent revising was 0 minutes.
The greatest amount of time spent revising was 98 minutes.

(b) Draw a box plot on the grid below to show the amount of time the Year 11 students spent revising for their maths test.



(3)

The box plot below shows the amount of time some Year 7 students spent revising for their maths test.



(c) Compare the distributions of times spent revising for Year 11 students and Year 7 students.

.....

.....

.....

.....

(2)

(Total for Question 13 is 7 marks)

14 x and y are positive integers.

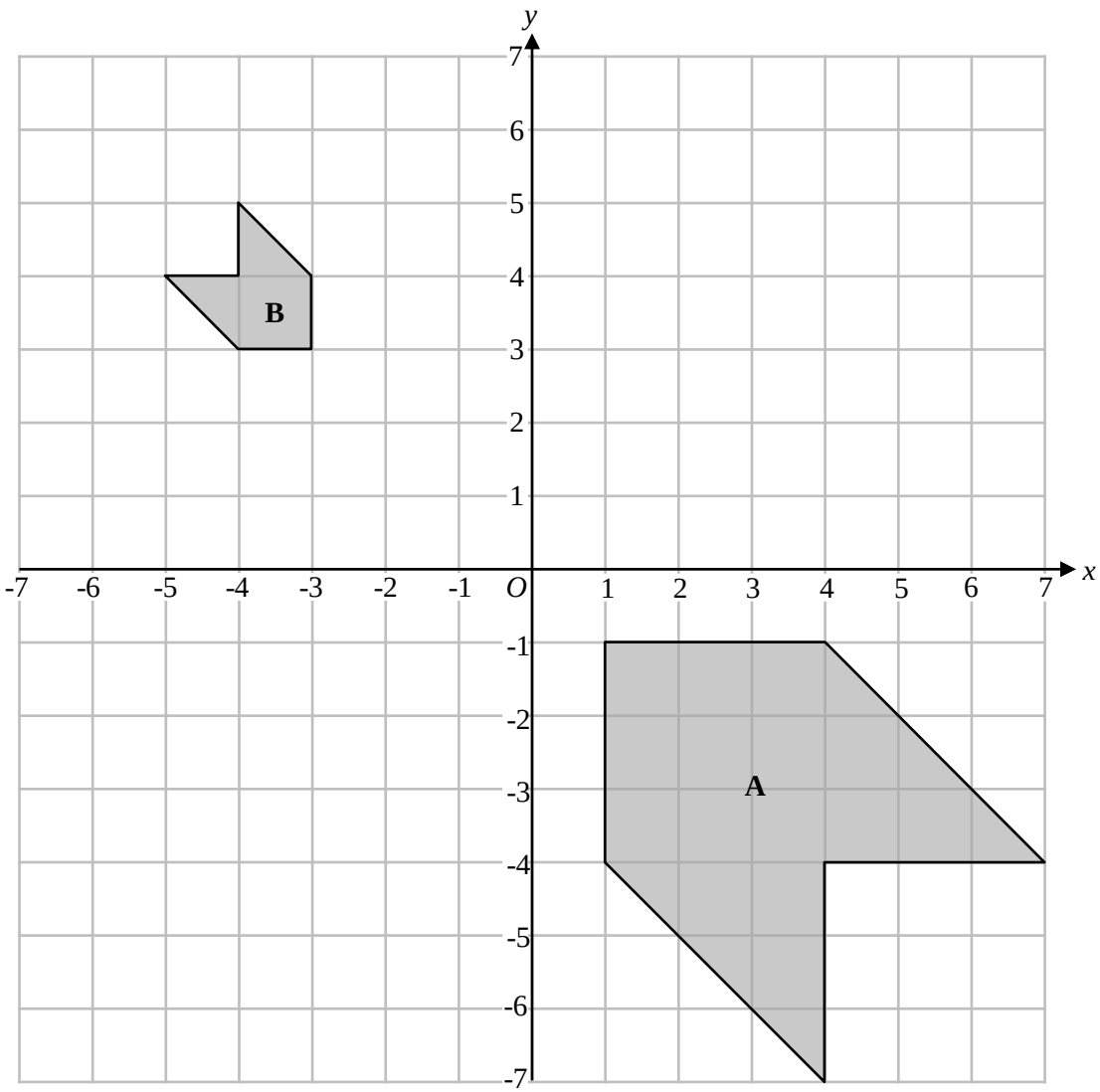
x is directly proportional to y^2

Complete the table of values.

x		50	200
y	3	5	

(Total for Question 14 is 2 marks)

15 The diagram shows shape **A** and shape **B** on a grid.



Describe fully the single transformation that maps shape **A** onto shape **B**.

.....

.....

.....

(Total for Question 15 is 3 marks)

16 $f(x) = 8x - 12$ $g(x) = \tan(x°)$

(a) Find $f^{-1}(x)$

$f^{-1}(x) =$ .....

(2)

(b) Work out the value of $gf(9)$

.....

(2)

(c) Find the values of x for which $f(x) = x^2$

.....

(3)

(Total for Question 16 is 7 marks)

17 $(5 - \sqrt{3})^3 = a + b\sqrt{3}$

Work out the values of a and b.

$a =$ .....

$b =$ .....

(Total for Question 17 is 4 marks)

18 Express $3.\dot{5}\dot{1}$ as a fraction in its simplest form.
You must show all your working.

.....

(Total for Question 18 is 3 marks)

19 $p : q = 4 : 5$

$3q : r = 2 : 7$

Work out $p : q : r$

.....:.....:.....

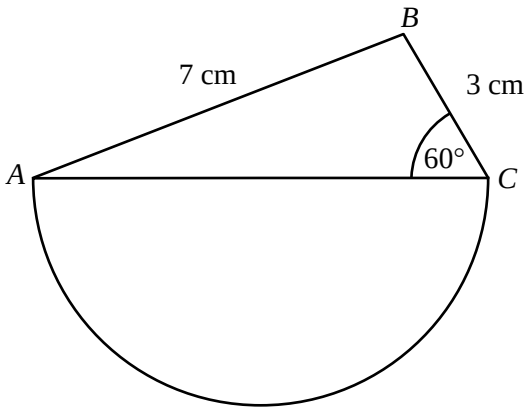
(Total for Question 19 is 3 marks)

20 Show that $(10y + 40) \div \dfrac{5y^2 - 80}{3y^2 - 7y - 20}$ can be written in the form $ay + b$

where a and b are integers.

(Total for Question 20 is 4 marks)

21 A compound shape is made from triangle *ABC* and a semicircle with diameter *AC*.



AB = 7 cm
BC = 3 cm
Angle *ACB* = 60°

Work out the area of the compound shape.
Give your answer in the form $a\sqrt{3} + b\pi$ cm^2 where *a* and *b* are integers.

..... cm^2

(Total for Question 21 is 5 marks)

22 Curve **C** has equation $y = 2x^2 - kx + k$ where k is an integer.

(a) Show that the coordinates of the turning point of curve **C** are $\left(\frac{k}{4}, k - \frac{k^2}{8}\right)$

(3)

The turning point of curve C also lies on the line $y = x$

(b) Given that $k > 0$, work out the value of k.

$k =$ .....

(3)

(Total for Question 22 is 6 marks)

TOTAL FOR PAPER IS 80 MARKS