



Class  
Maths

Video Solutions



PRACTICE PAPER FOR

AQA Paper 3H  
(June 2024)

----- Disclaimer -----

This paper has been created based on the **most common** paper 3 topics from previous years and also careful analysis of what topics have already appeared in paper 1/2. 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. Some topics may appear, some may not. Anybody giving you any sort of guarantee is misleading you. If any topics or questions from this paper do come up, this is just lucky guessing and nothing more. ☺

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](http://www.1stclassmaths.com)

----- Copyright -----

This paper and all resources hosted on the website [www.1stclassmaths.com](http://www.1stclassmaths.com) are free for personal and educational use only.

I do not give permission for reproduction, modification, distribution, or commercial exploitation of these materials in any format including use on third party websites and social media platforms without prior written permission. For permission requests please contact me via email.

Full copyright notice at <https://www.1stclassmaths.com/copyrightnotice>



@1stclassmaths



Do not write  
outside the  
box

Answer **all** questions in the spaces provided.

- 1  $x$  is a positive integer.  
Write down the value of  $x^0$  [1 mark]

Answer \_\_\_\_\_

- 2 Simplify  $3m^6 \times 9m^{-2}$  [1 mark]

Answer \_\_\_\_\_

- 3 Factorise fully  $5x^3 + 12x^2$  [1 mark]

Answer \_\_\_\_\_

- 4 Jake thinks of a number.  
He multiplies his number by  $M$  to get a new number.  
His new number is 6% greater than his original number.

Write down the value of  $M$ .

$M =$  \_\_\_\_\_





Do not write  
outside the  
box

5 Write down the reciprocal of 0.8

[1 mark]

Answer \_\_\_\_\_

6  $a : b : c = 4 : 5 : 12$

6 (a) Write a fraction in the box below to complete the statement

[1 mark]

$b$  is  of  $a$

6 (b) Write an integer in the box below to complete the statement

[1 mark]

$c$  is  % of  $a$

7 (a) Write the number 4 million in standard form.

[1 mark]

\_\_\_\_\_

Answer \_\_\_\_\_

7 (b) The number  $7.2 \times 10^{50}$  is written as an ordinary number.  
How many digits will it have?

[1 mark]

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_

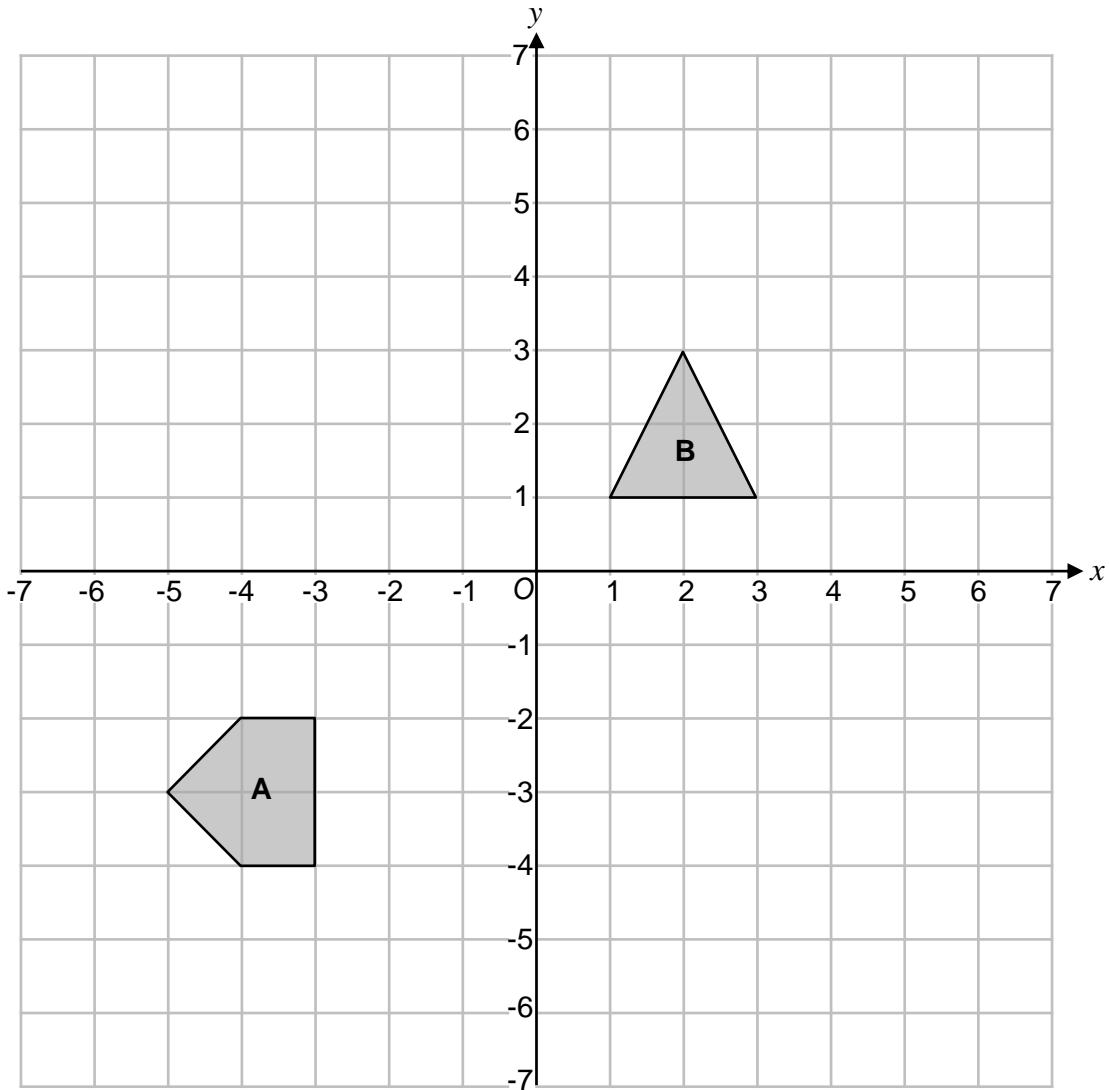
Turn over ►





Do not write  
outside the  
box

8 Shape **A** and Shape **B** are shown on the grid below.



8 (a) Rotate shape **A**  $90^\circ$  anticlockwise about  $(-1, 1)$  [2 marks]  
Label the image shape **C**.

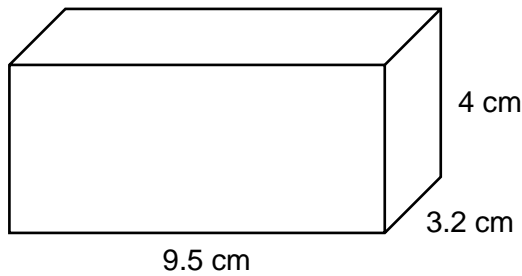
8 (b) Reflect shape **B** in the line  $y = 3$  [2 marks]  
Label the image shape **D**.





Do not write  
outside the  
box

9 Here is a cuboid made from metal.



The mass of the cuboid is 1 kg.  
Work out the density of the cuboid in  $\text{g/cm}^3$

[3 marks]

---

---

---

---

---

Answer \_\_\_\_\_  $\text{g/cm}^3$

10 The bearing of  $A$  from  $B$  is  $080^\circ$

Work out the bearing of  $B$  from  $A$ .

[2 marks]

---

---

---

Answer \_\_\_\_\_  $^\circ$

|   |
|---|
| 9 |
|---|

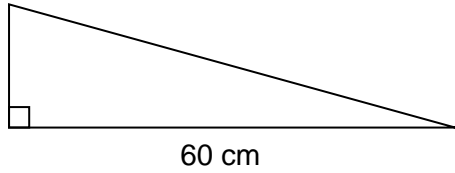
Turn over ►





Do not write  
outside the  
box

11 Here is a triangle with an area of  $330 \text{ cm}^2$



Work out the perimeter of the triangle.

[5 marks]

---

---

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_ cm





Do not write  
outside the  
box

12 The first two terms of a sequence are shown below.

10 15 ... ..

12 (a) Devon assumes it is a linear sequence.  
Work out the next term of the sequence using Devon's assumption. [1 mark]

---

---

Answer \_\_\_\_\_

12 (b) Sarah assumes it is a geometric sequence.  
Work out the next term of the sequence using Sarah's assumption. [1 mark]

---

---

Answer \_\_\_\_\_

12 (c) Morgan assumes it is a Fibonacci-type sequence.  
Work out the next term of the sequence using Morgan's assumption. [1 mark]

---

---

Answer \_\_\_\_\_

12 (d) Chuck assumes the sequence is the triangular numbers starting from 10.  
Work out the next term of the sequence using Chuck's assumption. [1 mark]

---

---

Answer \_\_\_\_\_

Turn over ►





Do not write  
outside the  
box

13  $P$  and  $Q$  are consecutive cube numbers.  
Both  $P$  and  $Q$  are greater than 100 and less than 1000  
The difference between  $P$  and  $Q$  is a square number.  
Work out this square number.

[3 marks]

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_

14 Exterior angle of a regular **octagon** : Exterior angle of a regular **decagon** =  $n : 1$   
Work out the value of  $n$ .

[3 marks]

---

---

---

---

---

---

---

---

$n =$  \_\_\_\_\_

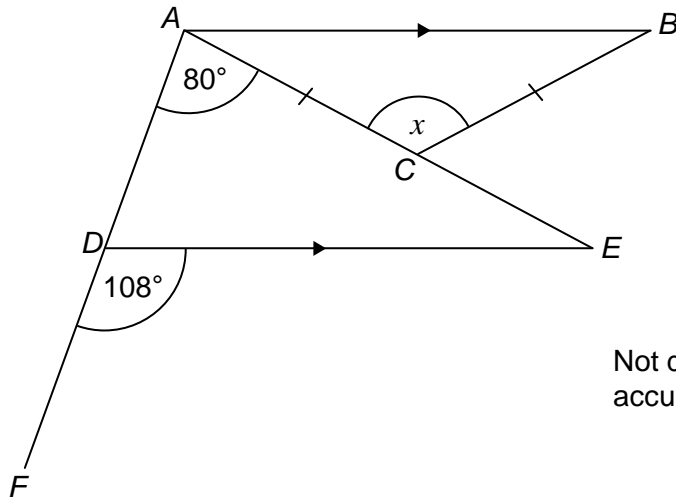






Do not write outside the box

15



Not drawn accurately

ADF is a straight line.  
 Line AB is parallel to line DE.  
 $AC = BC$   
 Work out the size of the angle marked  $x$   
 Give reasons for your answer.

[4 marks]

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_

Turn over ►

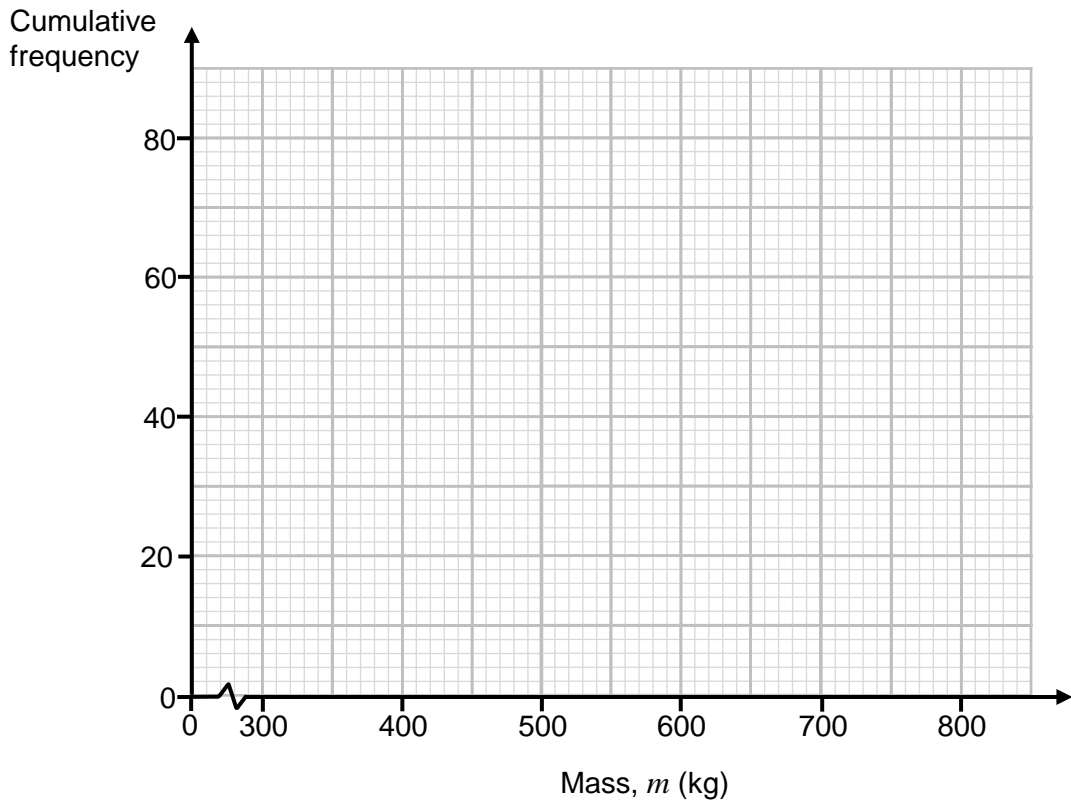


16 Here is some information about the masses, in kilograms, of 80 horses.

| Mass, $m$ , (kg)   | Frequency |  |  |
|--------------------|-----------|--|--|
| $300 < m \leq 400$ | 9         |  |  |
| $400 < m \leq 500$ | 13        |  |  |
| $500 < m \leq 600$ | 24        |  |  |
| $600 < m \leq 700$ | 21        |  |  |
| $700 < m \leq 800$ | 13        |  |  |

16 (a) Draw a cumulative frequency graph.

[3 marks]





Do not write  
outside the  
box

16 (b) Use your graph to estimate the median mass of the 80 horses. [1 mark]

---

---

Answer \_\_\_\_\_ kg

16 (c) Horses that have a mass of less than 380 kg are considered ponies.  
Use your graph to find an estimate for the proportion of the horses that are ponies. [2 marks]

---

---

---

Answer \_\_\_\_\_

17 (a) Work out the highest common factor (HCF) of  $20x^4y^{12}$  and  $15x^8y^3$  [2 marks]

---

---

---

Answer \_\_\_\_\_

17 (b) Work out the lowest common multiple (LCM) of  $20x^4y^{12}$  and  $15x^8y^3$  [2 marks]

---

---

---

Answer \_\_\_\_\_

Turn over ►





Do not write  
outside the  
box

18

In a school there are

- 7 teachers in the Maths Department
- 8 teachers in the English Department
- 6 teachers in the Science Department

The headteachers selects two of these teachers, from different departments, to take part in a staff competition.

Work out the percentage of all possible selections that contain one teacher from the Maths Department and one teacher from the Science Department.  
Give your answer to 1 decimal place. **[3 marks]**

---

---

---

---

---

Answer \_\_\_\_\_ %

19

Solve  $x^2 < 7$

**[2 marks]**

---

---

---

---

---

Answer \_\_\_\_\_





Do not write  
outside the  
box

20

$A = (2, 6)$

$B = (1, 9)$

$C = (15, 2)$

Work out the equation of the line that  
is perpendicular to line  $AB$   
and  
passes through point  $C$

[4 marks]

---

---

---

---

---

---

---

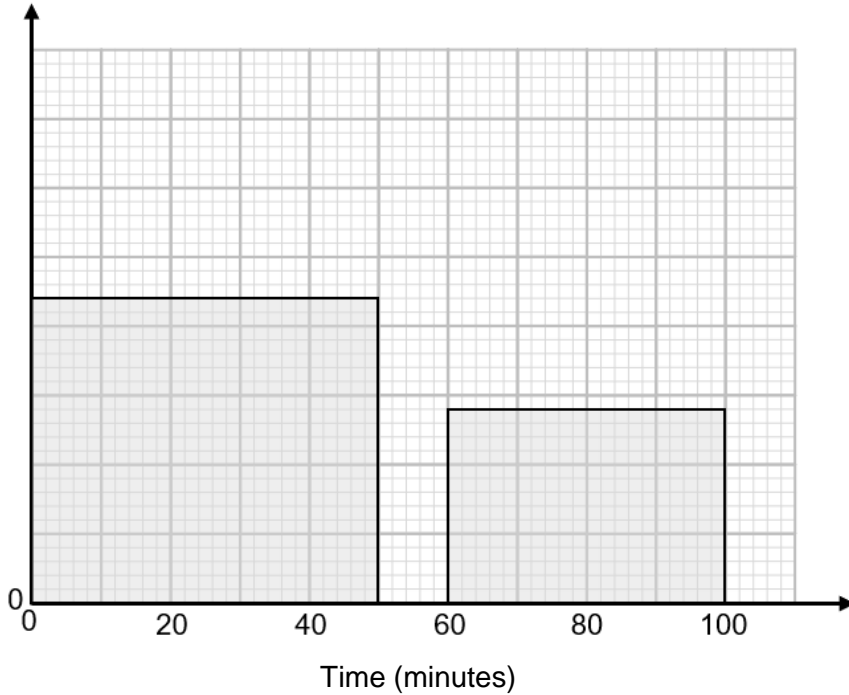
Answer \_\_\_\_\_

$\frac{\quad}{9}$

Turn over ►



21 The histogram shows information about the race times of some runners. The histogram is incomplete.



110 of the runners finished the race in less than 50 minutes.  
All of the runners finished the race in less 100 minutes.

In total 200 runners finished the race.  
Complete the histogram.

[4 marks]

---

---

---

---

---

---

---

---





22

$$f(x) = x(x - 2)$$

$$g(x) = x - 3$$

Simplify  $\frac{fg(x)}{gf(x)}$

[4 marks]

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_

Turn over ►





Do not write  
outside the  
box

23 The equation of a curve C is  $y = x^2 - 4x + 3$

23 (a) By completing the square, work out the coordinates of the turning point of C.  
You **must** show your working. **[3 marks]**

---

---

---

---

---

---

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

23 (b) The graph of the curve C is translated 3 units to the right and 1 unit up.  
The translated graph has equation  $y = f(x)$

Work out  $f(x)$ . **[4 marks]**

---

---

---

---

---

---

---

---

---

---

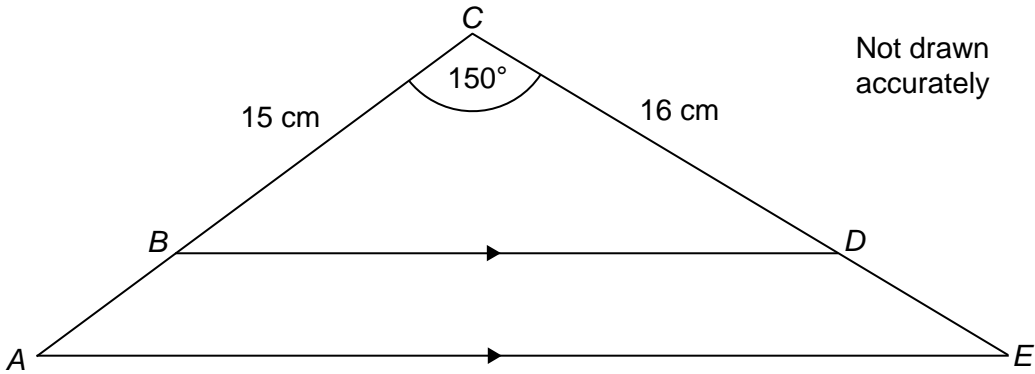
$f(x) =$  \_\_\_\_\_





Do not write outside the box

24



*ABC* and *CDE* are straight lines.  
*BD* is parallel to *AE*.  
The area of triangle *ACE* is  $135 \text{ cm}^2$

Work out the length of *AE*.  
Give your answer to 1 decimal place.

**[5 marks]**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_ cm

|    |
|----|
| 12 |
|----|



*Do not write  
outside the  
box*

25

A bag contains 3 red counters, 4 green counters and 7 blue counters.

A counter is taken at random from the bag and not replaced.

One counter of each of the colours that was not selected is then added to the bag.

A second counter is then taken at random from the bag and not replaced.

Work out the probability that after this, the number of red counters in the bag is the same as the number of green counters in the bag.

**[4 marks]**

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

Answer \_\_\_\_\_

$\frac{\quad}{4}$

**END OF QUESTIONS**

