



THIRD SPACE
LEARNING

Mathematics

Paper 2

(Non-Calculator)

Foundation Tier

OCR GCSE

SET 1A

Mathematics Paper 2 (Non-Calculator) Foundation Tier OCR GCSE SET 1A

Name

Total marks



Paper length: 1hr 30mins

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 not be used.

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.

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

This practice paper is based on the topics from the **advanced information for the Summer 2022 exam series**.

Please note, this practice paper is an example to help revision, these topics can be tested in other ways and other topics may be included in the actual papers

1 Calculate:

(a) $-7 + 10$

(a) [1]

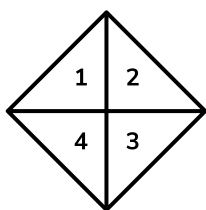
(b) 4×-8

(b) [1]

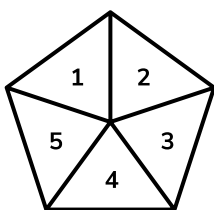
(c) $(-5)^2$

(c) [1]

2 Karuna has two spinners.



Spinner A



Spinner B

She spins both spinners.

(a) Which spinner has a greater probability of landing on a 1?

(a) [1]

(b) What is the probability of landing on a 3 on spinner A?

(b) [1]

(c) What is the probability of landing on an odd number on spinner B?

(c) [1]

3 (a) Write $\frac{3}{25}$ as a percentage.

(a)% [2]

(b) Write 150% as a decimal.

(b) [1]

- 4 Write 420 as a product of its prime factors. Give your answer in index form.

----- [2]

- 5 Felicity says that.

$$\frac{2}{7} + \frac{1}{4} = \frac{3}{11}$$

- (a) Explain Felicity's mistake.

----- [1]

- (b) Work out the correct answer to $\frac{2}{7} + \frac{1}{4}$

----- [2]

6 Here is part of an accounting spreadsheet for a glamping business:

Date	Money in	Money out	Balance
3rd March	Booking payment £98.40		£436.88
3rd March		Supplies purchased £67.65	£.....
4th March	Interest £ 3.87		£.....
6th March		Bill payment £104.28	£268.82

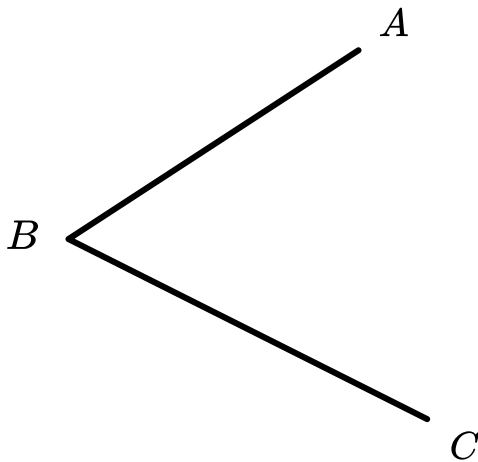
(a) Fill in the missing values in the balance column.

[3]

(b) The business has three payments of £61.25 and one payment of £84.40 due to go out. Does the business have enough money in the account to cover the payments? Show how you decide.

[3]

- 7 (a) The lines AB and BC represent hedgerows. Bisect the angle ABC. You must show all of your construction lines.



[2]

- (b) Dave wants to plant some trees closer to AB than to BC. Shade the area in which he should plant the trees.

[1]

- (c) Accurately construct the shortest possible line between the line DE and the point F. You must show all of your construction lines.



[3]

- 8 Three employees at a restaurant make the signature smoothie which contains orange juice and pineapple juice.

When Nicola makes the smoothie she uses $\frac{13}{20}$ orange juice.

(a) If she makes 500ml of smoothie, how much pineapple juice does she use?

(a) ml[3]

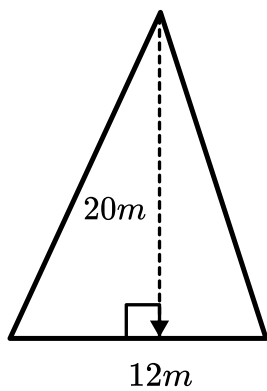
(b) When Emily makes the smoothie she uses 68% orange juice.

When Steve makes the smoothie he uses orange juice and pineapple juice in the ratio 3:1.

Which of the three employees uses the highest proportion of orange juice? You must show your workings.

(b) [4]

9 Kieron has a triangle shaped garden as shown:



Kieron wants to turf his lawn.
Kieron has decided to buy 10% extra turf to allow for offcuts.
Turf is sold in 10m² packs.
Each pack costs £80.
How much will Kieron pay for the turf?

£ [5]

10 (a) Show that $4(2p + 3) - 5(p - 6) = 3p + 42$

[3]

(b) Hence solve $4(2p + 3) - 5(p - 6) = 75$

$p =$ [3]

11 (a) Work out 0.7×0.3

(a) [1]

(b) Calculate $326.4 \div 8$

(b) [2]

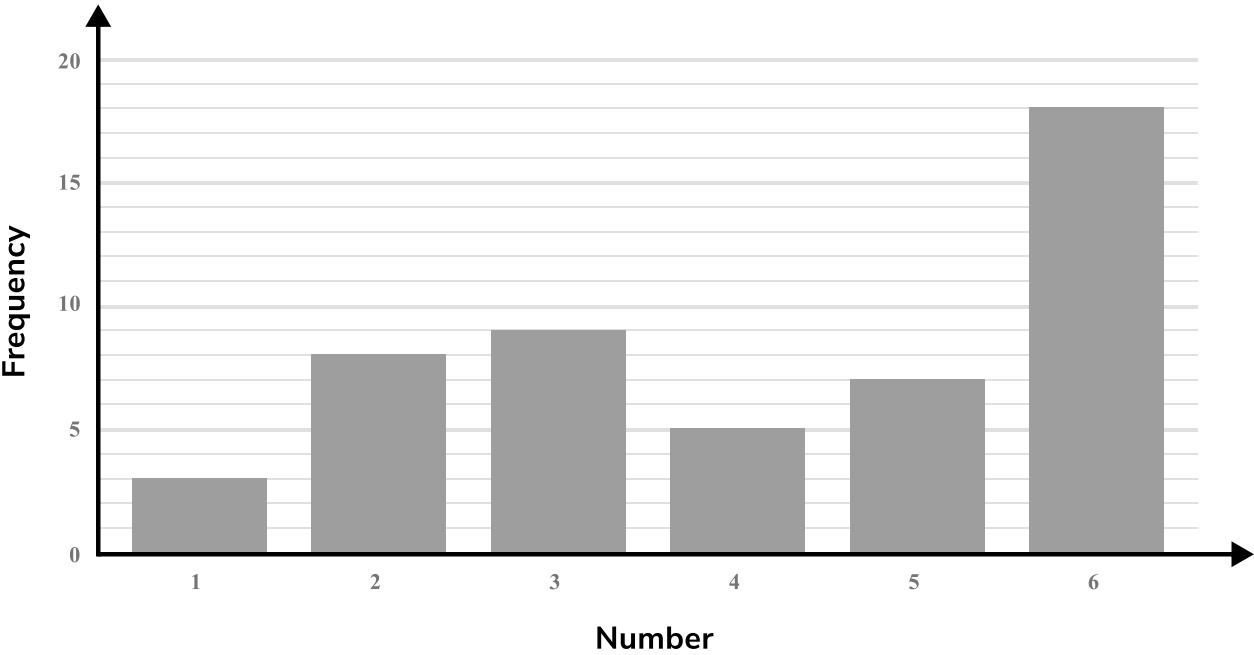
12 (a) Make a the subject of the formula $v = u + at$.

(a) $a =$ [2]

(b) Make p the subject of the formula $m = \frac{4p^2}{5n}$

(b) $p =$ [3]

13 Josh does an experiment in which he rolls a dice 50 times. Here are his results:



(a) Find the relative frequency of rolling an even number.

(a) [3]

(b) Josh says his dice is biased. Do Josh’s results support this statement? Explain your answer.

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[2]

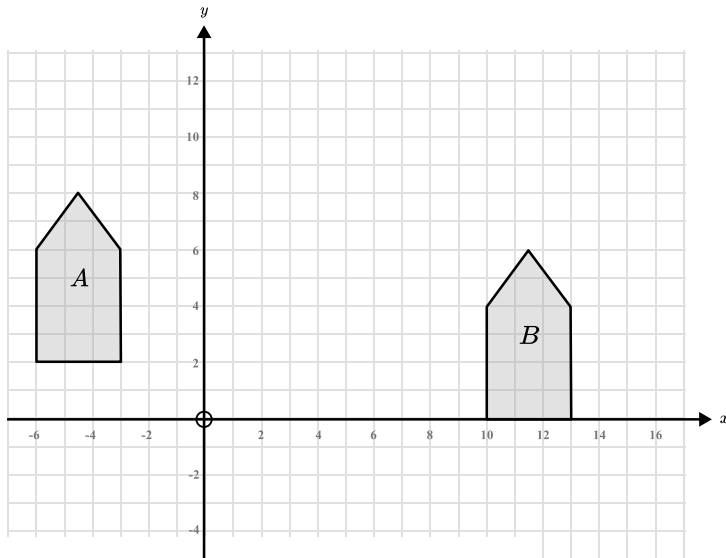
(c) What could Josh do to improve the reliability of his results?

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[1]

14



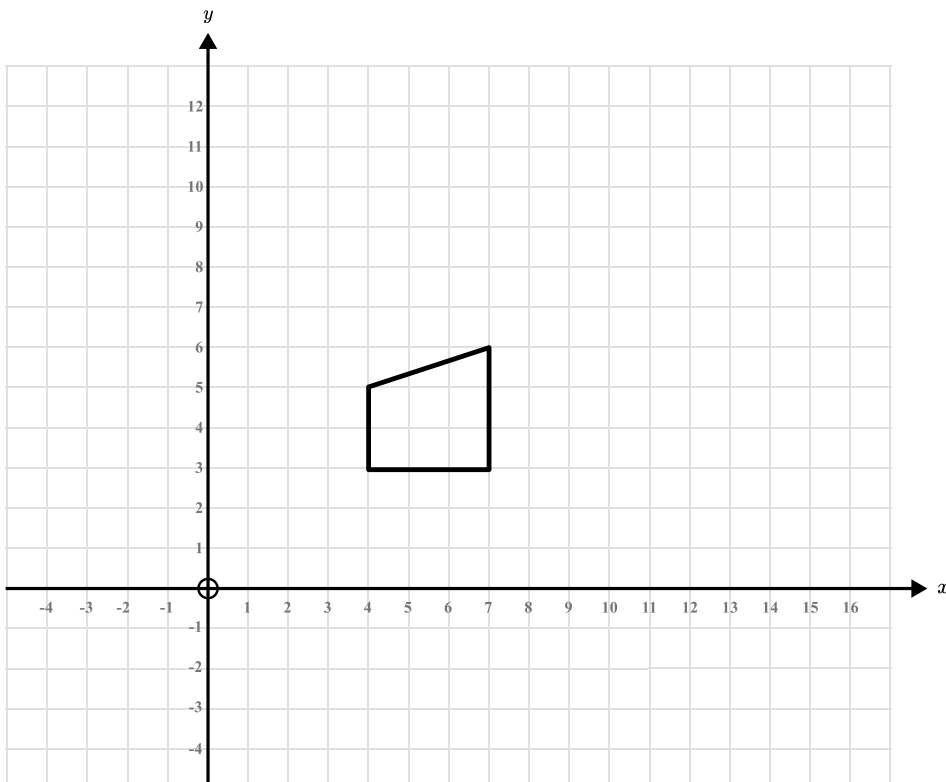
(a) Rotate shape A 90° clockwise about the origin

[2]

(b) Mark says that the transformation to get from shape A to shape B is a translation of $\begin{pmatrix} 13 \\ -2 \end{pmatrix}$
Is Mark correct? Explain your answer.

[2]

(c) Enlarge the shape by scale factor 2 from the centre (0,1)

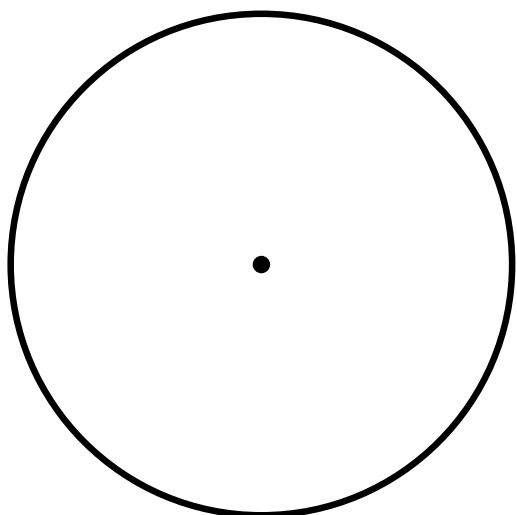


[3]

15 There are 180 animals on a farm:

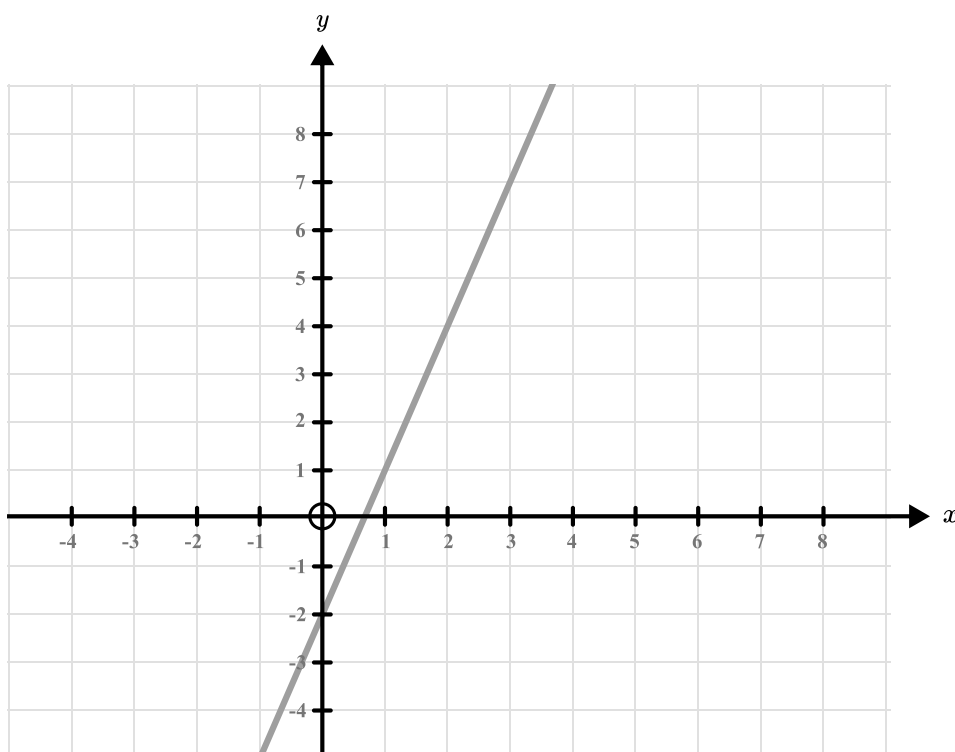
Cows	Sheep	Chickens	Dogs
88	41	45	6

Draw a pie chart to show this information.



[4]

16 (a) Find the equation of the straight line.



(a) [2]

(b) Circle the equation of the line that is parallel to $y=2x+3$.

$y = -2x + 3$

$y = 3x + 3$

$y = 2x - 7$

$y = \frac{1}{2}x + 2$

[1]

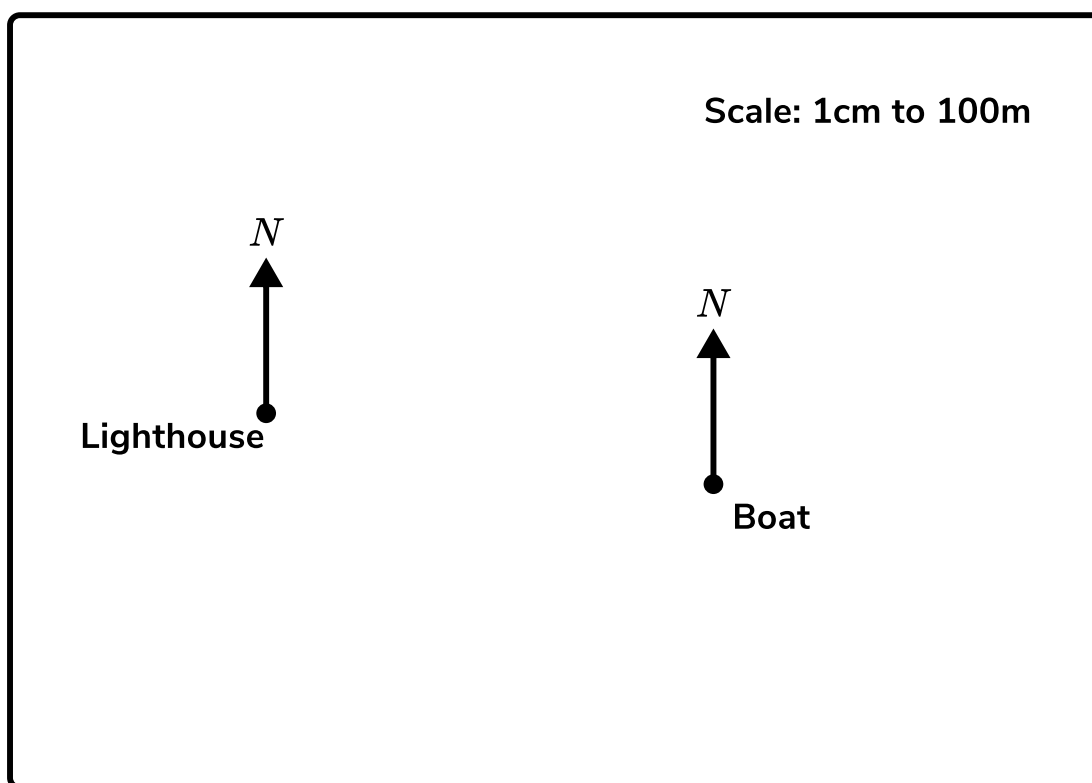
17 A boat is sailing near a lighthouse.

(a) The captain has a map. On the map, 20cm is equal to 40km in real life.

Write the scale of the map as a ratio in the form $1:n$.

(a) [2]

This diagram shows the current position of the boat:



(b) Write down the actual distance from the lighthouse to the boat.

(b) m [1]

(c) Measure the bearing of the boat from the lighthouse.

(c) [2]

(d) A second boat is on a bearing of 150° from the lighthouse and 250° from the first boat.

Mark the position of the second boat on the map.

[2]

18

City	Population	Number of police
London	9.9×10^6	3.3×10^4
Cardiff	3.6×10^5	3×10^3
Edinburgh	5.8×10^5	2.9×10^3

(a) How many more police are there in London than in Edinburgh?

Give your answer in standard form.

(a) [2]

(b) Which city has the least number of people per police officer? You must show your workings.

(b) [3]

19 In a warehouse it takes 3 workers 8 hours to sort 120 packages.

(a)i) Assuming all workers sort packages at the same rate, how long would it take 4 workers to sort 120 packages?

(a) i) hours [2]

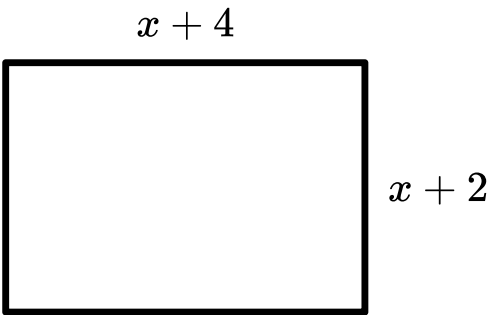
(a)ii) How many workers would be required to sort the packages in one hour?

(a) ii) workers [1]

(b) How long would it take one worker to sort 25 packages?

(b) hours [3]

20 The area of this rectangle is 35cm^2 .



(a) Show that $x^2 + 6x - 27 = 0$

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[2]

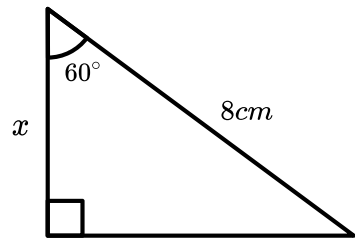
(b) Solve the equation $x^2 + 6x - 27 = 0$ and hence find the perimeter of the rectangle.

(b) cm [3]

21 (a) Work out the value of $\sin(30) + \tan(45)$

(a) [2]

(b) Find the length of the side x .



(b) cm [3]

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