Name	Date started	Target end date

WJEC GCSE Mathematics and Numeracy (Double Award) — Question Pack

Finding a percentage or fraction of a given quantity, and moving fluently between percentages, decimals and fractions. Sourced from legacy WJEC GCSE M

REVISE
.wales

F1.07 — Percentages & fractions of quantities

Spec 1.4.6, 1.4.7, 1.4.8, 1.4.9 — Unit 1 (calculator allowed)

Finding a percentage or fraction of a given quantity, and moving fluently between percentages, decimals and fractions. Sourced from legacy WJEC GCSE Mathematics-Numeracy Foundation papers (3300U10/U20) and accessible content from Intermediate papers (3300U30/U40), organised for revision under the 2025 spec.

2025 SPECIFICATION

Estimated time for entire question pack: ~4 hours 50 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (193 marks across 82 questions).*

*You are advised to **not** attempt to complete all of this in one sitting.*

ABOUT THIS QUESTION PACK

This is a **focused single-topic practice pack**, not a single mock paper. Questions are organised against the 2025 specification. Questions are ordered chronologically by sitting, with custom-written and SAM questions at the end.

INSTRUCTIONS

Use black ink or black ball-point pen. Show all working — method marks are awarded for clear setup.

A calculator is allowed on every question in this pack (Unit 1 is the calculator-allowed paper).

Percentages & fractions of quantities — what the new spec asks

WJEC GCSE Mathematics (first teaching 2025) · Unit 1: calculator-allowed.

Percentages of quantities 1.4.8

- Find a given percentage of a quantity using a multiplier or build-up method.
- Use a calculator efficiently with decimal multipliers.
- Work with percentages above 100% and below 1% in context.

Fractions of quantities 1.4.6

- Find a fraction of a quantity by multiplying by the numerator and dividing by the denominator.
- Interpret ‘of’ in word problems as multiplication.
- Combine with money, lengths, masses and times.

Equivalence 1.4.7

- Convert between percentages, decimals and fractions.
- Order a mixed list of percentages, decimals and fractions.
- Recognise common equivalents without a calculator.

Exam strategy 1.4.9

- Decide whether a non-calculator build-up or a calculator multiplier is faster.
- Always state units (pounds, kg, minutes).
- Sense-check: 15% of £240 should be a bit more than a tenth.

Crib sheet »

Percentages & fractions of quantities in one page

Quick-reference notes — revisit before each question. Don't use during the questions.

% of a quantity

$$\text{amount} = \text{quantity} \times (\% \div 100)$$

e.g. 15% of £240 = 240 × 0.15 = £36.

Fraction of a quantity

$$\text{amount} = \text{quantity} \times \text{fraction}$$

e.g. 3/5 of 90 = 90 × 3 ÷ 5 = 54.

% ↔ decimal ↔ fraction

25% = 0.25 = 1/4 · 50% = 0.5 = 1/2 · 75% = 0.75 = 3/4.

10% = 0.1 = 1/10 · 20% = 0.2 = 1/5.

Non-calc shortcuts

10% = ÷ 10 · 1% = ÷ 100 · 50% = ÷ 2 · 25% = ÷ 4.

Build other %s by adding: 15% = 10% + 5% (half of 10%).

Calculator method

Convert the % to a decimal then multiply.

e.g. 17.5% of 80 = 0.175 × 80 = 14.

Common traps

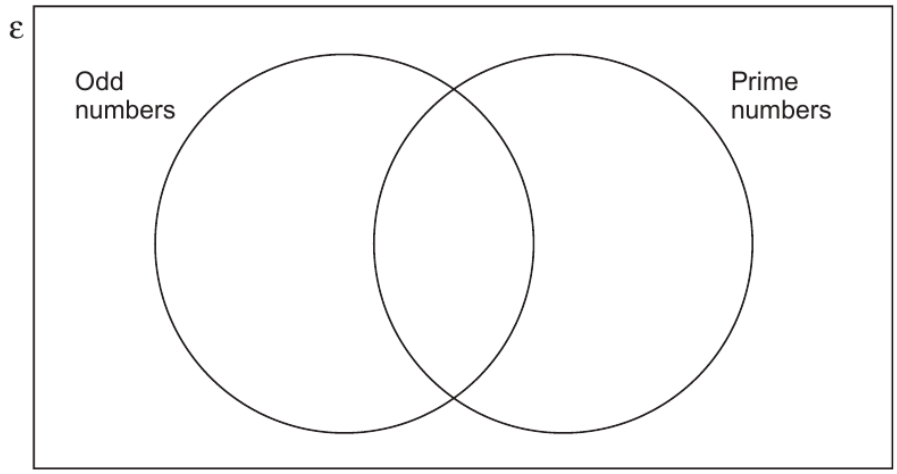
- Forgetting to divide by 100 (writing 15 × 240 instead of 0.15 × 240).
- Mixing up '3/5 of' with '3 out of 5' in a wordy question.
- Rounding too early in a multi-step calculation.

Examiner only

8. Eira believes that 4 minutes 48 seconds is less than half of 9 minutes 18 seconds.
Is Eira correct?
You must show all your working. [2]

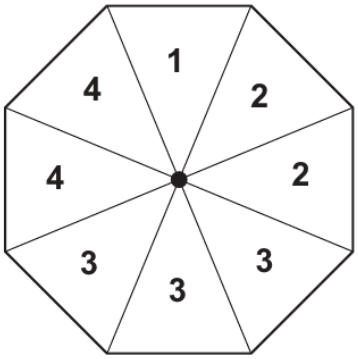
9. The Venn diagram below is used for showing
- odd numbers and
- prime numbers.

Place the numbers **1**, **2**, **3**, **4 and 5** in the Venn diagram. [2]



Examiner only

11. Seren has a fair 8-sided spinner.
The sections of the spinner are numbered 1, 2, 2, 3, 3, 3, 4, 4.



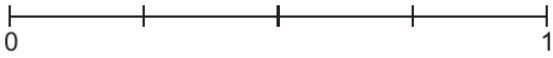
(a) Which number is the spinner most likely to land on? [1]

.....

(b) Circle one term from the list below that describes the probability of the spinner landing on a 2. [1]

impossible **unlikely** **even chance** **likely** **certain**

(c) On the probability scale below, mark with an arrow the probability of the spinner landing on a 3. [1]



Examiner only

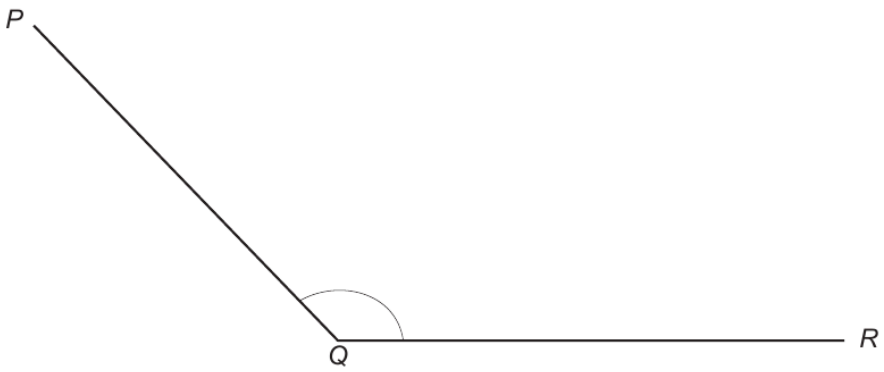
1. *(a)* Measure the length of the line *AB*.
Write your answer in centimetres. [1]

AB ..... cm

(b) In the space below, draw a circle with a radius of 6 cm. [1]

Examiner only

(c) Measure and write down the size of $P\hat{Q}R$. [1]



$P\hat{Q}R$ = ... °

Examiner only

9. A number is multiplied by 5.
3 is added to the answer to get 17.
What was the number?
You must show all your working. [2]

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.....

10. Find the value of each of the following.

(a) $\frac{4}{5}$ of 134 [2]

.....

.....

(b) 30% of 275 [2]

.....

.....

Examiner only

11. *(a)* Calculate $\frac{145{\cdot}3}{(12{\cdot}4 - 9{\cdot}8)^3}$, giving your answer correct to 3 significant figures. [2]

.....

.....

(b) Calculate the reciprocal of 47, giving your answer correct to 4 decimal places. [2]

.....

.....

12. Circle the correct answer in each of the following.

(a) Which of the following values **cannot** be an external angle of a regular polygon? [1]

10° 18° 30° 48° 72°

.....

.....

(b) An arrow on a spinner is facing north.
It is turned clockwise through an angle of 1530°.
In which direction will the arrow now be facing? [1]

North East South West None of these

.....

.....

(c) Point *A* is on a bearing of 100° from point *B*.
What is the bearing of point *B* from point *A*? [1]

260° 100° 280° 180° 80°

Examiner only

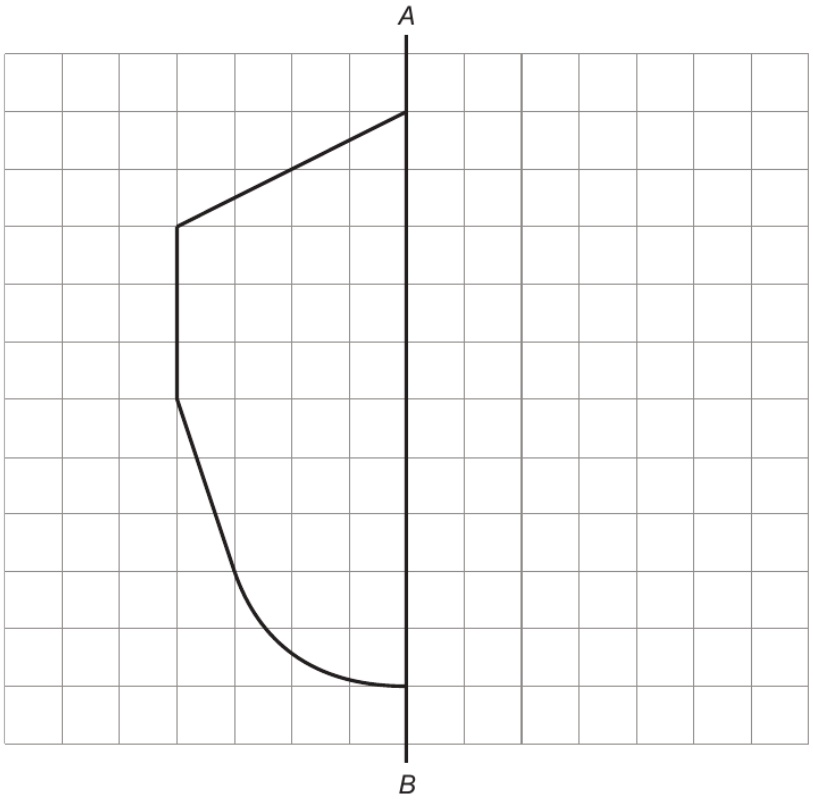
16. Find the whole number that satisfies all of the following conditions.

- It is a whole number between 1 and 100 inclusive.
- 10% of the number is greater than 2 but less than 8.
- $\frac{1}{2}$ of the number is a square number.
- The number is **not** a multiple of 4. [3]

The number is .....

Examiner only

5. *(a)* Complete the following figure so that it is symmetrical about the line AB. [2]



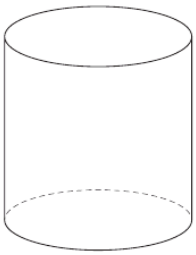
(b) Ben draws a shape that has:

- 4 sides,
- 4 angles of equal size,
- a pair of sides of length 4 cm, and
- a pair of sides of length 6 cm.

What type of shape has Ben drawn?
Circle the correct answer. [1]

square rhombus trapezium rectangle kite

(c) Write down the special name for the shape below. [1]



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Examiner only

8. *(a)* Calculate the approximate difference in length between 1 mile and 1·5 km. Give your answer in metres. [3]

(b) Convert an area of $4\,m^2$ into cm^2. [2]

$4\,m^2 =$ ..... cm^2

Examiner only

9. *(a)* Work out $9 \times 0{\cdot}4$ [1]

(b) Work out $17{\cdot}3 + 8{\cdot}6$ [1]

10. Which of the following amounts is larger?

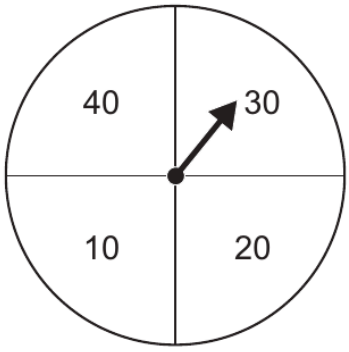
- 15% of £600, OR
- $\frac{1}{4}$ of £320

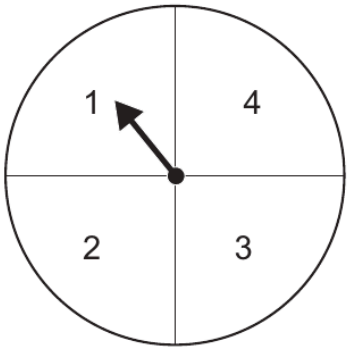
You must show all your working. [3]

Larger amount is £ .....

Examiner only

15. Two fair spinners are divided into quarters as shown below.
One spinner shows the values 10, 20, 30 and 40.
The other spinner shows the values 1, 2, 3 and 4.





The two spinners are spun and the values shown are added together to form a number.
For example, the diagram above would form the number 31.

Consider all the possible numbers that can be formed.
Calculate the probability that the spinners will form a number that is a multiple of 7.
You must show all your working in order to justify your answer. [4]

Examiner only

5. *(a)* Write 481·627 correct to 2 decimal places. [1]

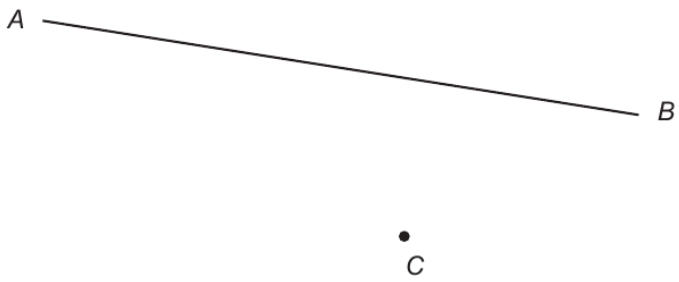
(b) Write down the value of 8^2. [1]

(c) Write down the value of $\sqrt{49}$. [1]

(d) Work out 38·25 ÷ 1000. [1]

Examiner only

4. A line *AB* is shown below.



(a) Mark the midpoint of *AB* with a ×. [1]

(b) Draw a line parallel to *AB* that passes through point *C*. [1]

5. *(a)* Bethan writes down two square numbers.

She adds her two numbers together.
Her answer is a square number less than 30.

Which two square numbers did Bethan write down? [2]

.....

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.....

.....

.....

Bethan's square numbers are ..... and .....

(b) Harri adds three even numbers together and gets an answer of 23.

Explain how you know that Harri's answer is incorrect. [1]

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.....

.....

Examiner only

9. *(a)* Express 60 out of 300 as a percentage. [2]

Answer is ..... %

(b) Some people were asked a question.

40% of the people answered 'Yes'.
A sketch of a pie chart showing this information is shown below.

Calculate the size of angle x so that the pie chart can be drawn accurately. [2]

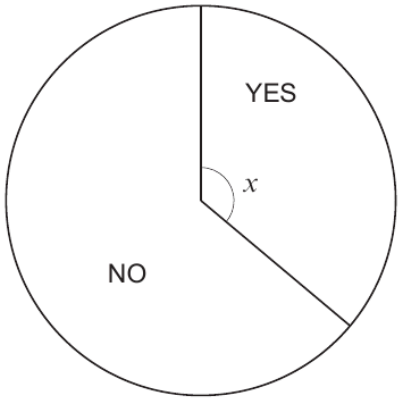


Diagram not drawn to scale

x = ... °

Examiner only

11. 200 young people are taking part in a conference held at Aberystwyth.

(a) One of the young people is chosen at random to be the chairperson.

Complete the table below to find the probability that the person chosen lives outside the United Kingdom (UK). [2]

	North Wales	Mid Wales	South Wales	Elsewhere in the UK	Outside the UK
Probability	0·2	0·3	0·25	0·15	

(b) How many of the 200 young people live in Mid Wales? [2]

Examiner only

17. *(a)* Solve the following equation. [3]

$$4(3x + 2) = 12$$

(b) Write down an expression for the **total** cost of 3 bananas at x pence each, and 5 apples at $2x$ pence each.
Simplify your answer. [3]

Examiner only

18. The right-angled triangle ABC has an area of $84\,cm^2$.
$AB = 24\,cm$.

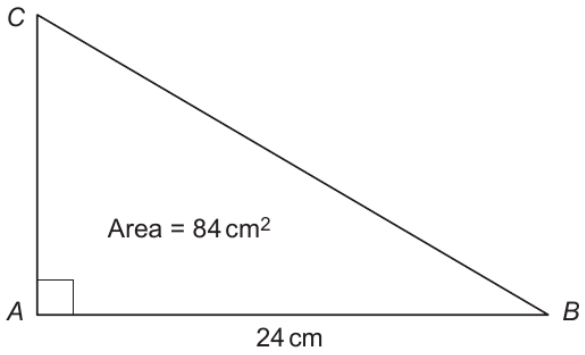


Diagram not drawn to scale

Calculate the perimeter of the triangle ABC.
You must show all your working. [6]

Examiner only

19. The diagram below shows a rectangle *ABCF* and a trapezium *CDEF*.
AF = 7 cm, *ED* = 8 cm and the perpendicular distance between *FC* and *ED* is 6 cm.
The area of the rectangle *ABCF* is 91 cm^2.

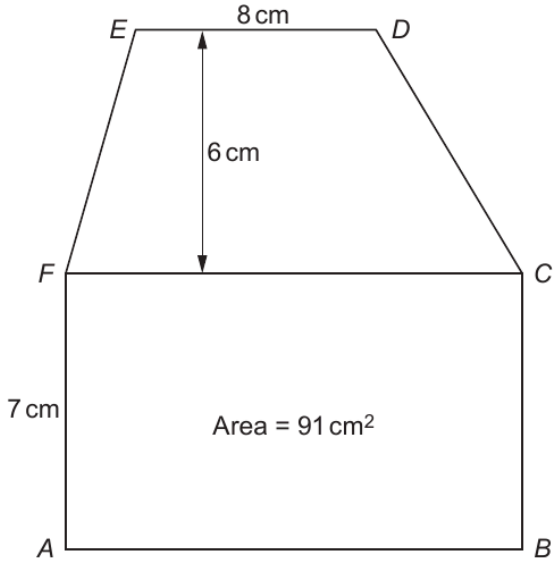
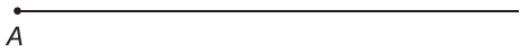


Diagram not drawn to scale

Calculate the area of the trapezium *CDEF*.
You must show all your working. [4]

Examiner only

1. *(a)* Draw an angle of 35° at point *A*. [1]



(b) In the space below, draw a circle with a diameter of 14 cm.
The centre of the circle is marked ● below. [1]

Examiner only

6. Write down the next number in each of the following sequences.

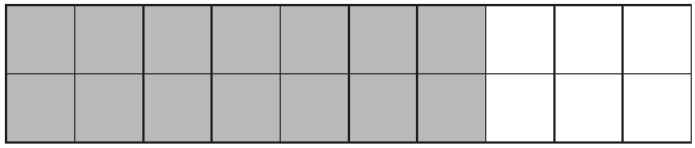
(a) 29, 35, 41, 47, ... [1]

.....

(b) 2000, 1000, 500, 250, ... [1]

.....

7. *(a)* What **percentage** of this diagram has been shaded? [1]



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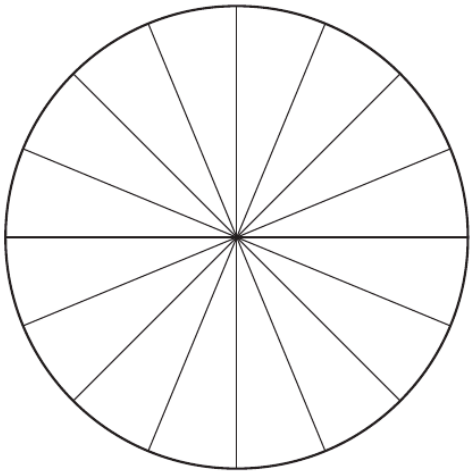
..... %

(b) Shade $\frac{3}{8}$ of this diagram. [1]



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Examiner only

10. *(a)* (i) Evaluate $\frac{1}{0{\cdot}25^2}$. [1]

(ii) Evaluate $5{\cdot}4^3 \times 3{\cdot}7^2$.
Give your answer correct to the nearest 10. [2]

(b) Find 62% of 7·8. [2]

(c) (i) Which one of the following numbers is a multiple of 19?
Circle your answer. [1]

91 151 199 219 247

(ii) Which one of the following numbers is a cube number?
Circle your answer. [1]

1197 2197 3197 4197 5197

Examiner only

19. The diagram below shows a circle with centre at point *O*.
A, *B*, *C* and *D* are all points on the circumference of the circle.

AB = 7·5 cm and *BC* = 4·7 cm.

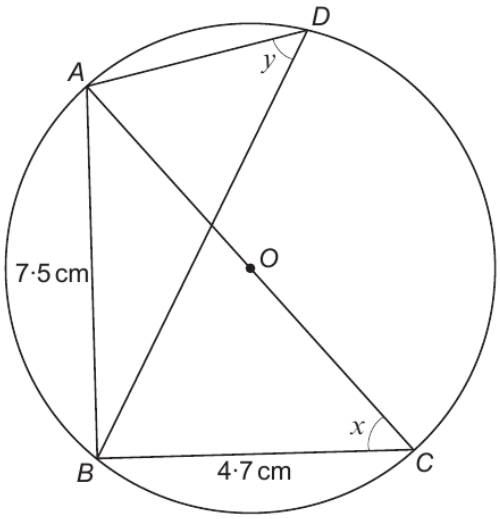

Diagram not drawn to scale

(a) (i) Give the reason why $\hat{ABC}$ is 90°. [1]

.....

.....

(ii) Calculate the size of angle x. [3]

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.....

(b) Write down the size of angle y.
State the circle theorem you have used to find your answer. [2]

y = ...

Circle theorem used: .....

.....

END OF PAPER

Examiner only

1. *(a)* Write 95 048 in words. [1]

(b) Find the sum of 872 and 59. [1]

(c) Multiply 250 by 5. [1]

(d) Work out $\frac{1}{3}$ of 624. [1]

(e) Write down all the factors of 18. [2]

The factors of 18 are .....

Examiner only

2. Circle the correct answer to complete each of the following statements.

(a) $\frac{1}{3}$ of $\frac{1}{3}$ is equal to [1]

$\frac{2}{3}$ $\frac{2}{6}$ $\frac{1}{6}$ $\frac{1}{9}$ $\frac{2}{9}$

(b) $0{\cdot}02 \times 0{\cdot}8$ is equal to [1]

0·016 0·16 1·6 0·4 4

(c) 1·5% can be written as [1]

$1{\cdot}5^{100}$ 0·15 0·015 0·105 $1{\cdot}5^{10}$

3. *(a)* Calculate the value of $\frac{2}{5} \times \frac{1}{4}$.

Give your answer in its simplest form. [1]

(b) Calculate the value of $3^3 \div 2^2$.

Give your answer as a decimal. [2]

Examiner only

6. *(a)* Write the next term in the sequence below. [1]

2, 26, 50, 74, ...

(b) Describe the rule for continuing the following sequence. [1]

77, 64, 51, 38, 25, ...

Rule:

.....

.....

(c) A dog is x years old.
Another dog is 2 years younger.
Write down, in terms of x, the age of the younger dog. [1]

.....

.....

7. Gwenan writes down four numbers:

64 89 83 26

(a) Calculate the mean of Gwenan's numbers. [3]

.....

.....

.....

.....

(b) Every number in Gwenan's list is increased by 1.
What is the mean of her new list of numbers? [1]

.....

.....

Examiner only

7. *AB* and *CD* are parallel.

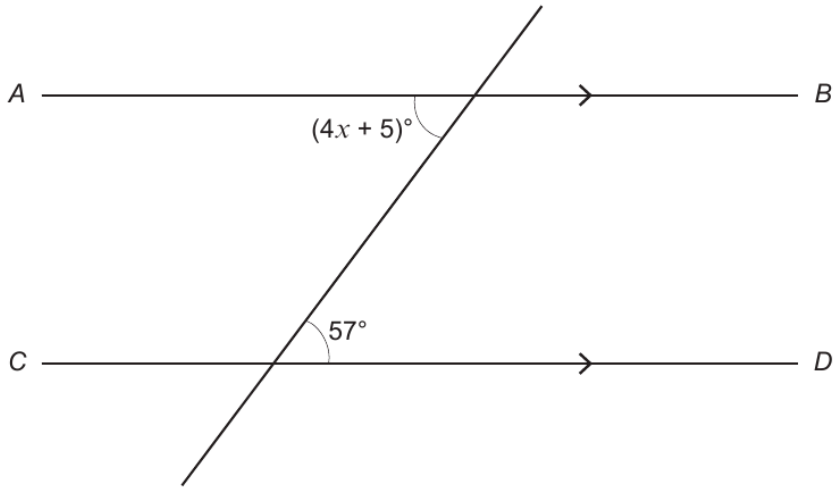

Diagram not drawn to scale

Calculate the value of x. [3]

8. Write down four positive whole numbers in the boxes below so that:

- the range of the numbers is 6,
- the mean of the numbers is 5,
- the median of the numbers is 4. [3]

Examiner only

9. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

A rectangle has length 15 cm and width 7 cm.
A square has the same perimeter as this rectangle.

Calculate the length of a side of the square.
You must show all your working. [4 + 2 OCW]

Examiner only

11. Circle the correct answer to complete each of the following statements.

(a) $\frac{1}{3}$ of $\frac{1}{3}$ is equal to [1]

$\frac{2}{3}$ $\frac{2}{6}$ $\frac{1}{6}$ $\frac{1}{9}$ $\frac{2}{9}$

(b) $0{\cdot}02 \times 0{\cdot}8$ is equal to [1]

0·016 0·16 1·6 0·4 4

(c) 1·5% can be written as [1]

$1{\cdot}5^{100}$ 0·15 0·015 0·105 $1{\cdot}5^{10}$

12. *(a)* Calculate the value of $\frac{2}{5} \times \frac{1}{4}$.

Give your answer in its simplest form. [1]

(b) Calculate the value of $3^3 \div 2^2$.
Give your answer as a decimal. [2]

Examiner only

15. *(a)* (i) Expand $x(x^2 + 7)$. [2]

(ii) Expand and simplify $(x - 5)(3x - 4)$. [2]

(b) Sarah buys and sells antique clocks.
On Monday, Sarah had n clocks.
At the end of the day on Tuesday, she had 5 times as many clocks as she had on Monday.
On Wednesday, she sold 27 clocks.

(i) At the end of the day on Wednesday, Sarah had fewer clocks than she had on Monday.
Write an inequality, in terms of n, that shows this information. [2]

(ii) Solve your inequality to find the greatest number of clocks that Sarah could have had on the Monday. [3]

Examiner only

7. (a) Simplify $12a - 19a + 10a$. [1]

(b) Solve the following equations.

(i) $3y = 189$ [1]

(ii) $27 - x = 15$ [1]

(c) Write down the value of $\sqrt{36}$. [1]

8. A sack contains 5·4 kg of potatoes.
A second sack contains 3·08 kg of potatoes.
A third sack contains 2·2 lb **(pounds)** of potatoes.

Calculate the total mass of these potatoes.
Give your answer in **kilograms**. [3]

Examiner only

12. Calculate each of the following.

(a) $3^2 \times 2^3$ [2]

(b) $-124 \div 4$ [1]

(c) 15% of 280 [1]

13. Write 0·3, $\frac{8}{25}$ and 31% in ascending order.

You must show all your working. [3]

....

Smallest value Greatest value

Examiner only

14. This cuboid has:

- length = 5 cm
- width = x cm
- height = $(x^2 + 3)$ cm
- volume = 132 cm^3.

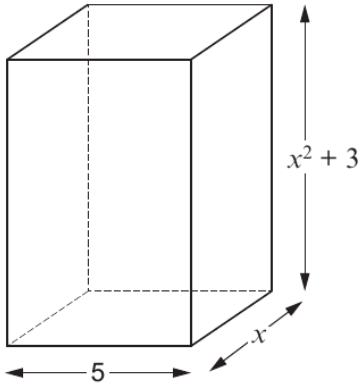

Diagram not drawn to scale

(a) Show that $5x^3 + 15x = 132$. [1]

(b) (i) A solution of the equation

$$5x^3 + 15x = 132$$

lies between 2 and 3.
Use the method of trial and improvement to find this solution correct to 1 decimal place.
You must show all your working. [4]

Examiner only

(ii) Hence, find the height of the cuboid. [1]

.....

.....

Height of the cuboid = ... cm

END OF PAPER

Examiner only

17. Circle the correct answer for each of the following statements.

(a) $7{\cdot}2\,m^3$ is equal to [1]

$720\,cm^3$ $72\,000\,cm^3$ $7{\cdot}2 \times 10^5\,cm^3$ $7{\cdot}2 \times 10^3\,cm^3$ $7{\cdot}2 \times 10^6\,cm^3$

(b) $36^{\frac{1}{2}}$ is equal to [1]

18 6 $\frac{1}{18}$ $\frac{1}{6}$ $\frac{1}{36}$

18. Find the value of $\frac{30\,000}{1{\cdot}5 \times 10^5}$.

Write your answer as a decimal. [2]

END OF PAPER

Examiner only

3. (a) The Royal National Lifeboat Institution (RNLI) bought a new lifeboat.

The lifeboat was funded as follows:

- 2% from government sources
- 94% from donations
- 4% from other sources.

The new lifeboat cost £2.2 million.

How much of the cost of this lifeboat was funded from government sources?
Write your answer in figures only. [3]

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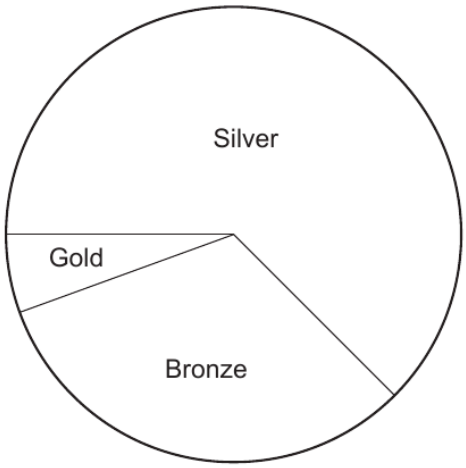
.....

.....

£ .....

Examiner only

(b) 1800 medals were awarded to RNLI crew members in recent years.
The distribution of the medals is shown accurately in the pie chart below.



Lifeboats

(i) What fraction of the medals awarded were bronze?
Circle your answer. [1]

$\frac{135}{360}$ $\frac{245}{360}$ $\frac{65}{360}$ $\frac{115}{360}$ $\frac{75}{360}$

(ii) How many gold medals were awarded?
You must show all your working. [3]

Examiner only

(iii) There are two flowers that each have 19 leaves.
Calculate the difference in the heights of these two flowers.
You must show all your working. [2]

.....

Difference in the heights is ..... cm

(iv) Calculate the percentage of the flowers that have **fewer than 23 leaves**. [2]

.....

.....

.....

..... % of the flowers have **fewer than 23 leaves**.

5. (a) Malik has two orchards.
He has apple trees and pear trees in his north orchard.
He has pear trees and cherry trees in his west orchard.

In the north orchard,
- Malik has a total of 35 trees
- number of apple trees : number of pear trees = 4 : 3.

In the west orchard,
- Malik has twice as many **pear** trees as he has **pear** trees in the north orchard
- number of pear trees : number of cherry trees = 5 : 11.

How many **cherry** trees does Malik have?
You must show all your working. [5]

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Examiner only

(b) Malik's crop of apples this year has a total mass of 5280 pounds.
He makes apple juice from $\frac{1}{6}$ of the mass of his apple crop.
Malik makes 2 litres of apple juice from every 5 kg of apples.

Calculate the number of litres of apple juice Malik makes. [6]

Examiner only

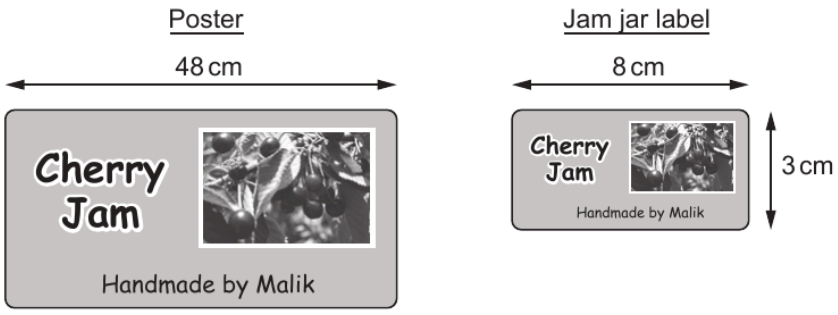
(c) Malik makes cherry jam using some of the fruit from his trees.

(i) He makes and sells 200 jars of cherry jam.

It costs him £94 for all the ingredients to make the jam.
Malik pays 23p for each jam jar he uses.
He sells each jar of jam for £1.60.

Calculate the profit Malik makes from selling his 200 jars of jam. [5]

(ii) Malik makes a poster to advertise his jam.
He also makes labels for the jars.
The poster and the labels are mathematically similar.



Diagrams not drawn to scale

Calculate the height of the poster. [2]

Examiner only

6. Delyth and Ronnie are both students at the local college.

(a) Their houses and the college are all joined by straight roads, as shown in the diagram.

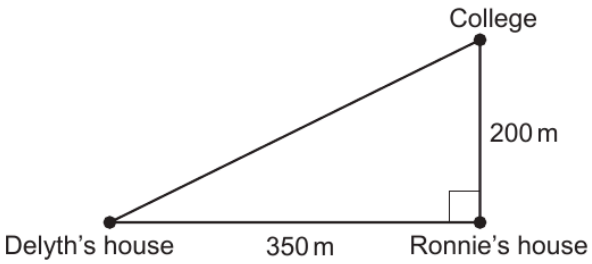


Diagram not drawn to scale

Delyth usually walks directly to college.
Calculate how much further Delyth has to walk if she passes Ronnie's house on her way to college. [5]

Examiner only

(b) 35 students were asked how far they travelled to the college.
The results are recorded in the table below.

Distance, d (metres)	Frequency
$100 < d \leqslant 200$	9
$200 < d \leqslant 1000$	10
$1000 < d \leqslant 3000$	15
$3000 < d \leqslant 7000$	1

(i) Ronnie is one of these 35 students.
He walks 200 m directly to college.

Does Ronnie travel further than the median distance travelled by these 35 students?

Yes ☐ No ☐ Can't tell ☐

You must give a reason for your answer. [1]

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(ii) Calculate an estimate of the mean distance these 35 students travelled to the college. [4]

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Estimate of the mean distance travelled by these 35 students is ..... m

Examiner only

(c) There are 140 students who travel by bus to and from college.

Delyth wants to find out why these students do not walk to college.
She has decided to use a systematic sampling method to select 7 of these students to form a discussion group.

The names of all the 140 students are in a list.
Delyth has randomly selected the 2nd student in the list to join the discussion group.

Complete the table below to give the positions in the list of the 7 students selected to join the discussion group. [2]

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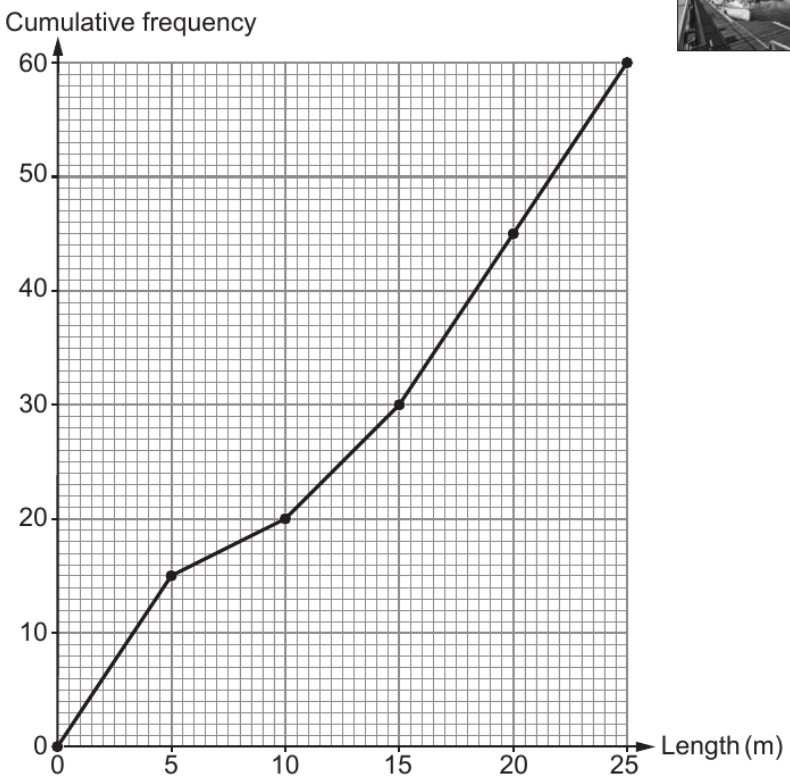
Student	1	2	3	4	5	6	7
Position in the list	2nd	.....	.....	.....	.....	.....	.....

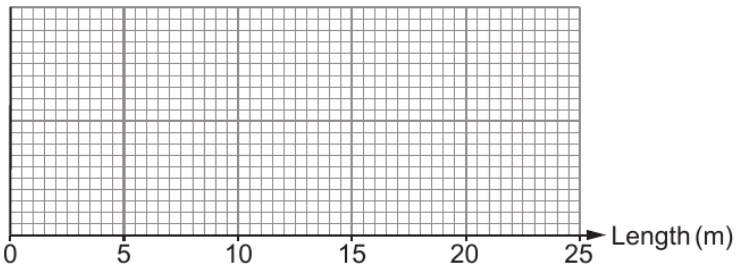
Examiner only

7. (a) The lengths of the 60 yachts in Eog Marina were measured.
The results are shown in the cumulative frequency diagram below.



The shortest yacht has a length of 3 m.
The longest yacht has a length of 22 m.

Use the information above to complete a box-and-whisker diagram on the graph paper below. [3]



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Examiner only

(b) The lengths of the 68 yachts in Clwyd Marina were measured.

For these yachts:
- the lower quartile of their lengths is 10 m
- 25% have lengths greater than 18 m
- the median length is 11·6 m.

(i) Calculate how many of the yachts in Clwyd Marina have lengths greater than 10 m. [2]

..... yachts

(ii) In which marina, Eog or Clwyd, is the interquartile range of the lengths of the yachts greater?

Eog Marina ☐ Clwyd Marina ☐

You must show all your working. [2]

(iii) In which marina is the longest yacht?

Eog Marina ☐ Clwyd Marina ☐ Can't tell ☐

You must give a reason for your answer. [1]

Examiner only

7. Most numbers have an **even** number of factors.
For example,
7 has **two** factors: 1 and 7.
8 has **four** factors: 1, 2, 4 and 8.

Some numbers have an **odd** number of factors.

There is one number between 14 and 20 that has an **odd** number of factors.
Find this number.
Write down all the factors of this number.
You must show all your working. [2]

The number is .....

The factors of this number are .....

8. Calculate each of the following.

(a) 2·7 squared [1]

(b) the square root of 11·56 [1]

(c) 60% of 28 [2]

Examiner only

8. 125 pupils were asked which one of four primary schools they attended.

(a) One of the pupils is chosen at random.

Complete the table below to find the probability that the pupil chosen went to Ysgol Bryn. [2]

	Ysgol Aber	Ysgol Bryn	Ysgol Castell	Ysgol Dewi
Probability	0·08	.....	0·2	0·28

(b) How many of the 125 pupils went to Ysgol Dewi? [2]

Examiner only

10. Estimate the value of $\dfrac{20\cdot4\times59\cdot1}{407}$.

You must show all your working. [2]

11. The nth term of a sequence is given by $3n-13$.

Write down the value of

(a) the 10th term, [1]

(b) the 4th term. [1]

Examiner only

10. (a) Express 21·76 as a percentage of 32. [2]

(b) Solve $5t + 3 = 3t + 14$. [3]

Examiner only

16. 125 pupils were asked which one of four primary schools they attended.

(a) One of the pupils is chosen at random.

Complete the table below to find the probability that the pupil chosen went to Ysgol Bryn. [2]

	Ysgol Aber	Ysgol Bryn	Ysgol Castell	Ysgol Dewi
Probability	0·08	.....	0·2	0·28

(b) How many of the 125 pupils went to Ysgol Dewi? [2]

Examiner only

18. (a) Express 21·76 as a percentage of 32. [2]

(b) Solve $5t + 3 = 3t + 14$. [3]

END OF PAPER

Examiner only

4. (a) Billy thinks of a number.
Billy halves his number.
His answer is 58.

What number did Billy think of? [1]

(b) Siân thinks of a different number.
Siân squares her number.
Her answer is 9.

What number did Siân think of? [1]

(c) Calculate 40% of 120. [2]

5. (a) Which of the following is equal to 0·5 kg?
Circle the correct answer. [1]

50 mg 500 g 500 mg 5 mg 50 g

(b) Which of the following is equal to 700 cm?
Circle the correct answer. [1]

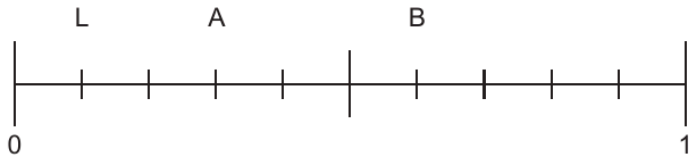
7 m 7 km 0·7 m 0·07 km 70 m

Examiner only

7. Catrin has a bag containing only apples, bananas and lemons.
She has 20 pieces of fruit altogether in her bag.
Catrin chooses one piece of fruit at random from her bag.

The probability that she chooses each type of fruit is shown on the probability scale below, where

- A represents apple
- B represents banana
- L represents lemon.



How many apples does Catrin have in her bag? [2]

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8. (a) The cost of one book is £m.
What is the cost of 15 books in pounds (£)? [1]

.....

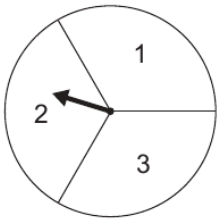
(b) Ieuan has 20 oranges.
He gives away k oranges.
How many oranges does Ieuan have now? [1]

.....

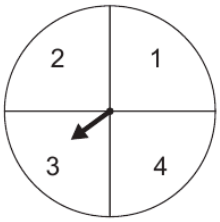
Examiner only

8. *In this question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Two **fair** spinners are shown below.



Spinner A



Spinner B

In a game, the numbers shown by the two pointers are added together.
In the diagram, the score gained would be 2 + 3 = 5.

A winning score is 6 or more.

How many winning scores would you expect when the game is played 60 times?
You must show all your working. [5 + 2 OCW]

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07

Examiner only

12. A large number of prize tokens are placed in a box.
The tokens are identical in shape and size.

Gold, *Silver*, *Bronze* or *No Prize* is written on each token.

One token is chosen at random from the box.
The table below shows the probability of choosing a *Gold* prize token and the probability of choosing a *Silver* prize token.

Token	Gold	Silver	Bronze	No Prize
Probability	0·02	0·18		

(a) There are three times as many *No Prize* tokens in the box as there are *Bronze* prize tokens.

Complete the table. [2]

(b) There are 15 *Gold* prize tokens in the box.
How many *Silver* prize tokens are there in the box? [2]

Examiner only

19. (a) Express 48 as a percentage of 400. [2]

(b) Share £45 in the ratio 8 : 1. [2]

£ ..... and £ .....

(c) Express $1-\frac{1}{2^3}$ as a single fraction in the form $\frac{a}{b}$, where a and b are integers. [2]

Answer = ...

Examiner only

19. (a) Express 0·0076 in standard form. [1]

(b) Calculate the value of $(3 \times 10^{17}) \times (2 \times 10^{-12})$.
Give your answer in standard form. [1]

(c) Calculate the value of $(2{\cdot}3 \times 10^{4}) + (5 \times 10^{3})$.
Give your answer in standard form. [2]

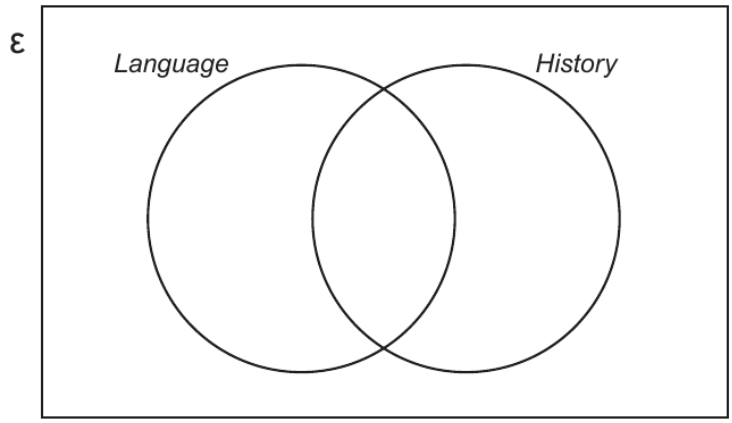
Examiner only

19. A bus going to a *Welsh Heritage* conference has 43 people on board.
There are 38 students, 4 tutors and a driver on the bus.

At the conference, each student will attend a session on *Language*, a session on *History* or both sessions.

- All the students will attend at least one session.
- 18 students will attend both sessions.
- 25 students will attend the session on *History*.
- The tutors and driver will not attend either of the sessions.

(a) Complete the Venn diagram below to show this information.
The universal set, ε, contains all of the 43 people on the bus. [3]



(b) One of the people on the bus is chosen at random.
What is the probability that this person will attend the session on *Language*? [2]

END OF PAPER

Examiner only

4. (a) Find $\frac{3}{7}$ of 9·17 km.

Give your answer in metres. [3]

..... metres

(b) Express 25 minutes as a percentage of 2 hours 5 minutes. [3]

Examiner only

4. The table below shows Katie's assessment results.

Subject	Maths	English	History	PE
Result	65%	$\frac{6}{10}$	$\frac{43}{50}$	80%

Katie wants to compare her results by putting them in order.

By completing the table below, put Katie's assessment results in order from lowest to highest. You must show working to support your answer. [3]

	Lowest → Highest			
Subject				
Result				

Examiner only

4. (a) *In this part of the question, you will be assessed on the quality of your organisation, communication and accuracy in writing.*

Rita gives some money to charity.
She decides to share this money between 3 different charities.

Rita gives $40 to a children's charity.
This is $\frac{1}{5}$ of the total amount of money she gives to the 3 charities.
Rita gives $\frac{1}{4}$ of the total amount of money to an animal charity.

She gives the remaining money to a medical research charity.
Calculate how much money Rita gives to the medical research charity.
You must show all your working. [5 + 2 OCW]

(b) Last year, Rita's total income before tax was $30 000.

No income tax was payable on any income below $10 000.
Income tax had to be paid at a rate of 22% on any income between $10 000 and $30 000.

How much income tax did Rita pay last year? [3]

Examiner only

5. Treviso is a company that designs and builds bicycles.

(a) Treviso has designed this new bike frame.
The missing angles need to be calculated.

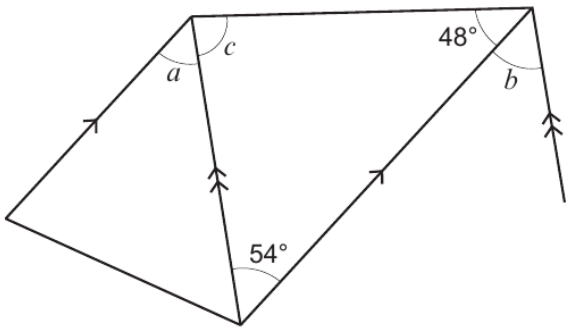


Diagram not drawn to scale

Find the size of each of the angles a, b and c. [3]

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.....

a = ... ° b = ... ° c = ... °

Examiner only

(b) Each wheel on Treviso's new bike has a diameter of 29 inches.

(i)

Remember:	1 foot = 12 inches

Ollie tests Treviso's new bike over a distance of 1000 feet.
How many times will a wheel rotate during the test? [4]

(ii)

Remember:	12 inches ≈ 30 cm

What is the diameter of each wheel in **millimetres**? [3]

Diameter is ..... mm

(c) Ollie uses the new bike in a 48 km race.
He completes the race in a time of 1 hour 30 minutes.
Calculate his average speed for the race.
Give your answer in km/h. [3]

Average speed is ..... km/h

Examiner only

6. Kamal worked for a total of 36 hours in one week.
On Monday, Tuesday and Wednesday, he worked the same number of hours each day.
On both Thursday and Friday, he worked for half as long as he did on any of the first three days.
He did not work on Saturday or Sunday.

How many hours did Kamal work for on Friday? [2]

Kamal worked for ..... hours on Friday

Examiner only

7. Jac is planning to visit the Empire State Building in New York.

(a) According to the internet, the Empire State Building has a total of 1172 miles of elevator cable.

Complete the following statement. [2]

There is a total of ..... **km** of elevator cable in the Empire State Building.

(b) The elevators in the Empire State Building were designed to move at a rate of 0·366 kilometres per minute.

Complete the following statement. [2]

The elevators in the Empire State Building were designed to move at ..... **metres per second.**

(c) Planners had an original budget of $60 million to construct the Empire State Building. It actually cost $41 000 000 to construct.

Complete the following statement.
Give your answer correct to 2 decimal places. [3]

Constructing the Empire State Building cost ..... % less than the original budget.

Examiner only

(d) More than 4 million people visit the Empire State Building each year.
What is 4 million written in standard form?
Circle your answer. [1]

4×10^{-5} $0\cdot4\times10^{5}$ 4×10^{5} 4×10^{6} 4×10^{7}

(e) The conversion rate at the exchange shop is £1 = $1.25.
The exchange shop only has $10 notes and $50 notes.

Jac has exactly £350.
He wants to exchange as close to £350 as possible for US dollars ($).
He asks for as **few** notes as possible.

Calculate:
- how many $10 notes and how many $50 notes Jac gets
- how much he pays for his currency.

You must show all your working. [6]

Examiner only

7. Write 27 minutes and 11 seconds in **seconds**. [2]

27 minutes and 11 seconds = ... seconds

8. (a) Find the value of $\frac{144 \times 30^2}{18}$.

Write your answer correct to the nearest thousand. [2]

(b) Calculate 4% of £250. [2]

(c) Laura thinks of a number.

$\frac{1}{5}$ of her number is 14.

What is 50% of Laura's number? [3]

50% of Laura's number is .....

Examiner only

8. (a) Rita gives some money to charity.
She decides to share this money between 3 different charities.

Rita gives $40 to a children's charity.
This is $\frac{1}{5}$ of the total amount of money she gives to the 3 charities.
Rita gives $\frac{1}{4}$ of the total amount of money to an animal charity.

She gives the remaining money to a medical research charity.
Calculate how much money Rita gives to the medical research charity.
You must show all your working. [5]

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Examiner only

(b) Last year, Rita's total income before tax was $30 000.

No income tax was payable on any income below $10 000.
Income tax had to be paid at a rate of 22% on any income between $10 000 and $30 000.

How much income tax did Rita pay last year? [3]

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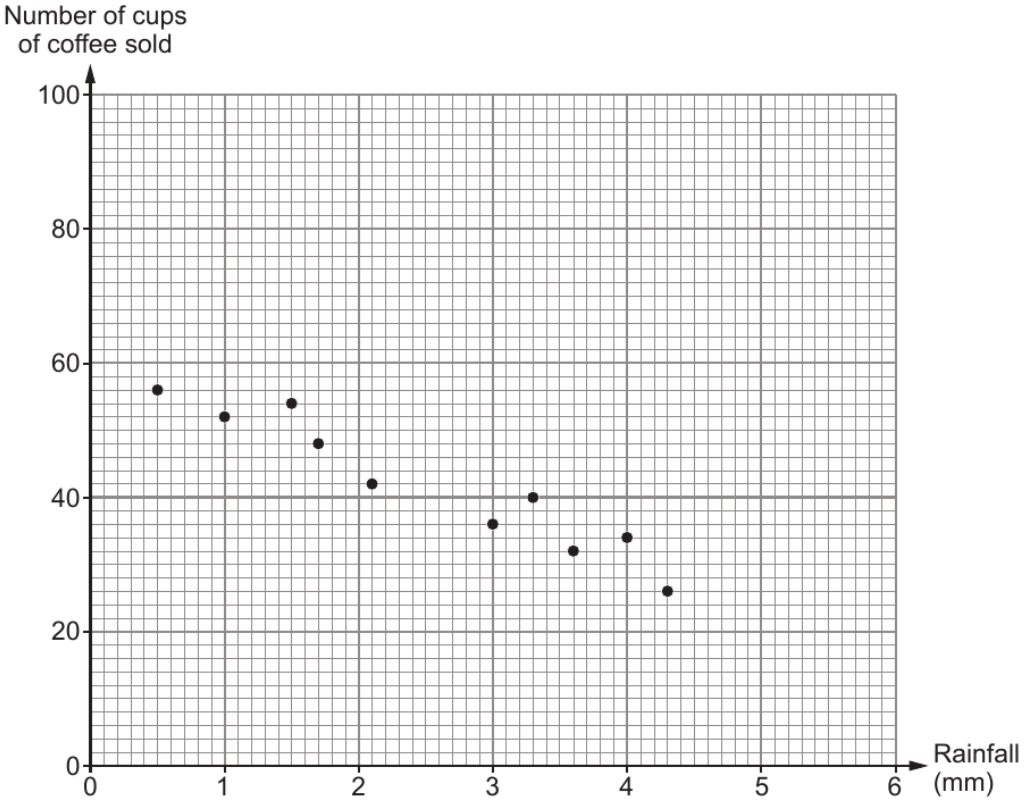
Examiner only

8. Anwen has an outdoor mobile coffee stall.

(a) It rained on each of the last 10 days.
Each day, Anwen recorded the amount of rainfall and the number of cups of coffee she sold.
The scatter diagram below shows her results.



For the last 10 days:
- the mean number of cups of coffee sold per day was 42
- the **total** rainfall was 25 mm.

(i) Give the coordinates of the point through which a line of best fit should be drawn.
Hence, draw a line of best fit on the scatter diagram. [2]

.....

.....

Coordinates of the point are (..... , ...)

Examiner only

(ii) Estimate the number of cups of coffee that Anwen expects to sell on a day when the rainfall is 2·0 mm.
Use your line of best fit to find your estimate. [1]

.....

Number of cups of coffee is .....

(b) Anwen buys her coffee beans in tins.
Each tin has a height of 18 cm, correct to the nearest 1 cm.

Calculate the maximum height of a stack of 5 of these tins. [2]

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(c) The height of the storage space under Anwen's serving counter is 97·5 cm, correct to the nearest 0·5 cm.

Anwen is going to buy a recycling bin of height exactly 97·3 cm.
Can Anwen be certain that she can fit this bin under her serving counter?

Yes ☐ No ☐ Can't decide ☐

You must show working to support your answer. [1]

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Examiner only

8. (a) (i) A single tree can absorb 48 **pounds** of carbon dioxide per year.
Calculate the carbon dioxide absorbed per year by a forest of 440 of these trees.
Give your answer in **kilograms**. [2]

Carbon dioxide absorbed per year is ..... kg

(ii) A forest of trees absorbs $2{\cdot}3 \times 10^{11}$ grams of carbon dioxide per year.
Which of the following is $2{\cdot}3 \times 10^{11}$?
Circle your answer. [1]

230 000 000 000 23 000 000 000 2 300 000 000 000

0·000 000 000 002 3 0·000 000 000 023

(b)

Remember:	$10\,000\,m^2 \approx 2{\cdot}47$ acres

A report states that a fire in a forest has a high risk of spreading when there are more than 60 trees per acre.

There are 615 trees in Grancwm Forest.
The forest covers an area of $40\,000\,m^2$.

Would a fire in Grancwm Forest have a high risk of spreading?

Yes ☐ No ☐

You must show all your working to support your answer. [4]

Examiner only

(c) A vertical pine tree stands on horizontal ground.
From a point on the ground 21 metres from its base, the angle of elevation of the top of the pine tree is 39°.

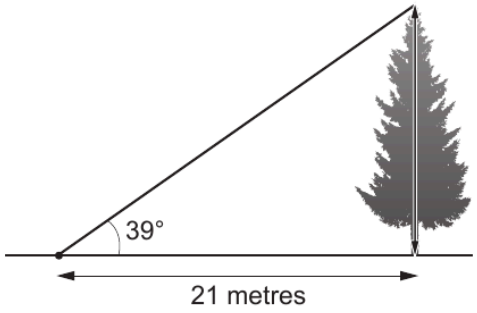


Diagram not drawn to scale

(i) Show that the pine tree has a vertical height of 17 metres. [3]

(ii) A cylindrical log is cut from this pine tree.
The **circumference** of the cross-section of the log is 1·75 m.
The length of the log is half the height of the tree.

Calculate the volume of the log.
Give your answer in m^3.
You must show all your working. [5]

Volume of the log is ..... m^3

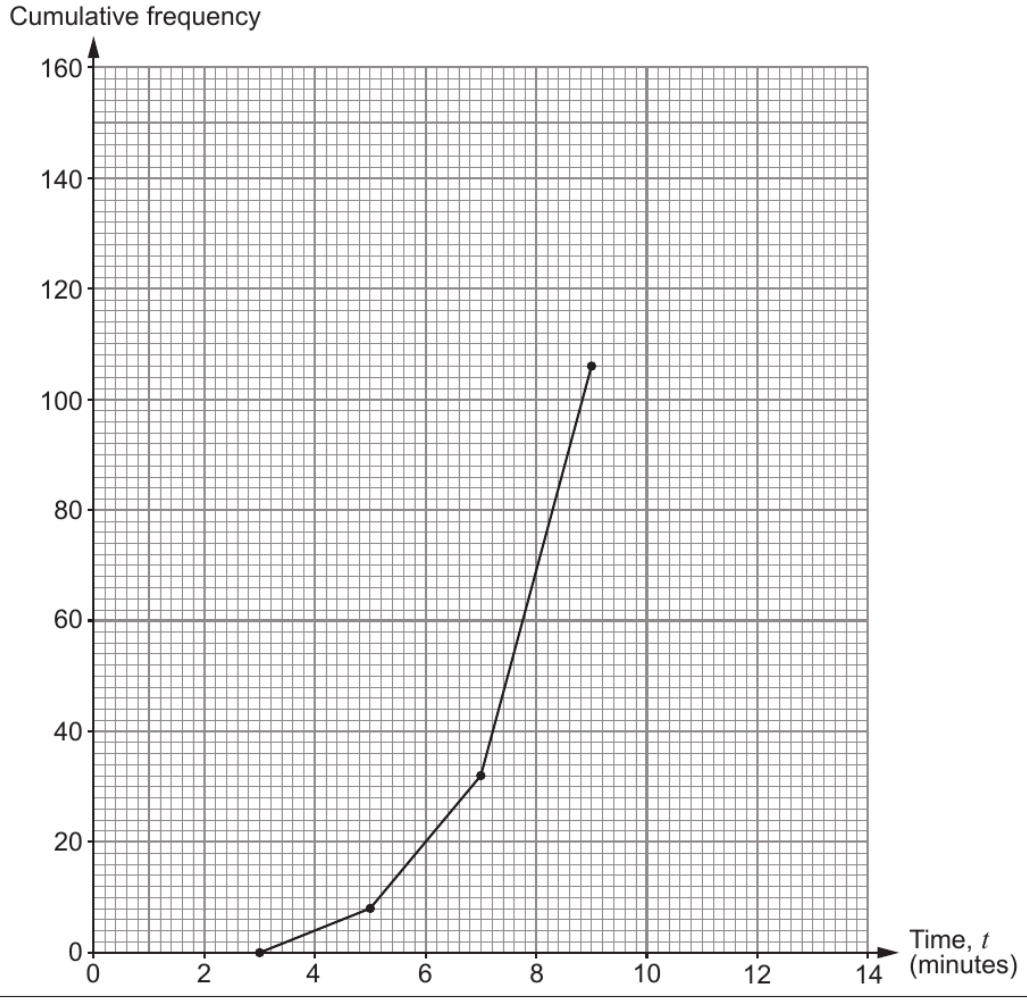
Examiner only

9. Giovanni has a takeaway pizza van. He sells whole pizzas and slices of pizza from his van.

(a) For the last 3 days, he has timed how long it takes to complete the food order for each of his customers.
Giovanni recorded his results in the table below.

(i) Complete the cumulative frequency table **and** the cumulative frequency diagram. [2]

Time, t (minutes)	Frequency	Cumulative frequency
$3 < t \leqslant 5$	8	8
$5 < t \leqslant 7$	24	32
$7 < t \leqslant 9$	74	106
$9 < t \leqslant 11$	40	.....
$11 < t \leqslant 13$	14	.....



Examiner only

Use your cumulative frequency diagram to give the best estimates for the answers to each of the following questions.

(ii) Find the median time taken to complete a food order. [1]

The median time is ..... minutes.

(iii) Giovanni is concerned that food orders are taking too long to complete.
He says,

"Only 25% of the food orders are completed in under ..... minutes."

Use **one** of the five values below to complete Giovanni's statement. [1]

6·4 6·6 7·2 8 9·6

(iv) Calculate the percentage of orders that were completed in less than 6 minutes. [2]

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(b) For the last 3 days:
- Giovanni spent £180 on ingredients
- he spent £220 on the running costs for the pizza van
- he received a total of £700 from the food orders.

Calculate Giovanni's percentage profit. [3]

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(c) Next year Giovanni intends to charge £8.40 for a basic pizza.
This is an increase of 20% from the current charge.

Calculate how much Giovanni currently charges for a basic pizza. [2]

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Examiner only

9. (a) Maggie sees a Bluetooth speaker in a sale.

The price of the speaker is reduced by 18% in the sale.
The original price of the speaker was £45.

Maggie's mum says she will share the cost of buying this speaker.
The ratio of the amount Maggie's mum pays to the amount Maggie pays is 8 : 1.

Calculate the amount Maggie's mum will pay towards buying this speaker in the sale.
You must show all your working. [4]

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Examiner only

(b) The diagram below shows a flowerbed at Maggie's house.
Maggie's mum will pay her £2.50 per m^2 to weed the flowerbed.

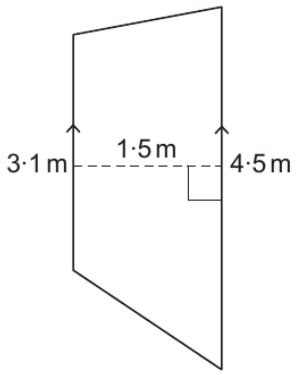

Diagram not drawn to scale

Calculate how much Maggie will get paid for the weeding. [4]

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Examiner only

11. Jac is planning to visit the Empire State Building in New York.

(a) According to the internet, the Empire State Building has a total of 1172 miles of elevator cable.

Complete the following statement. [2]

There is a total of ..... **km** of elevator cable in the Empire State Building.

(b) The elevators in the Empire State Building were designed to move at a rate of 0·366 kilometres per minute.

Complete the following statement. [2]

The elevators in the Empire State Building were designed to move at ..... **metres per second**.

END OF PAPER

Examiner only

13. Here is a net of a cuboid.

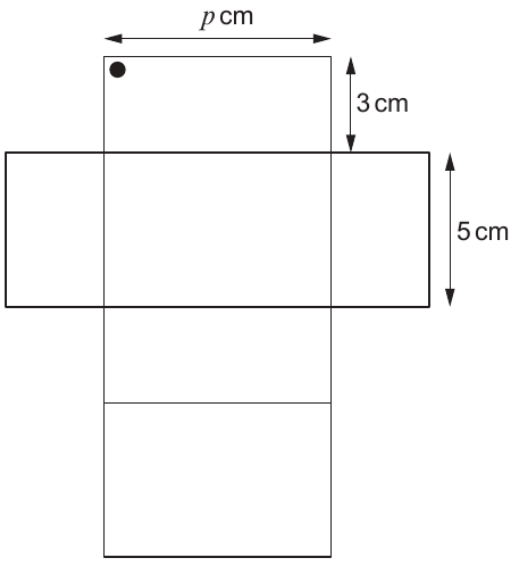

Diagram not drawn to scale

The net is folded to form a cuboid.

(a) The corner marked with ● meets two other corners on the net.
Mark these two other corners with ●. [2]

(b) The volume of the cuboid is 90 cm^3.
What is the value of p? [2]

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Examiner only

14. (a) Evaluate $\frac{18 \cdot 4^3 + 8 \cdot 79}{7 \cdot 3^2}$.

Give your answer correct to the nearest 10. [2]

(b) Evaluate $\sqrt{1456} \times 3 \cdot 7$.

Give your answer correct to 1 decimal place. [2]

15. Kamal worked for a total of 36 hours in one week.
On Monday, Tuesday and Wednesday, he worked the same number of hours each day.
On both Thursday and Friday, he worked for half as long as he did on any of the first three days.
He did not work on Saturday or Sunday.

How many hours did Kamal work for on Friday? [2]

Kamal worked for ..... hours on Friday

Examiner only

17. The shape below has a total length of 35 cm.
The shape is cut into three parts, A, B and C.

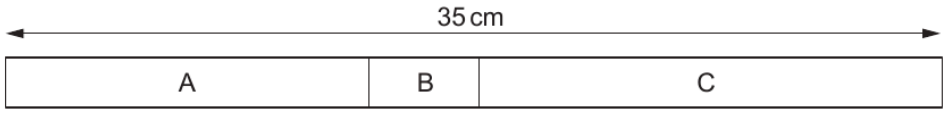

Diagram not drawn to scale

The length of A is $\frac{2}{5}$ of the total length of the shape.

The lengths of B and C are in the ratio 1 : 6.

Find the length of **each** part of the shape.
You must show all your working. [4]

Examiner only

1. Solve each of the following equations.

(a) $\frac{x}{5} = 20$ [1]

(b) $7m + 3 = 31$ [2]

2. (a) Evaluate 55% of 42·8. [2]

(b) Which one of the following is **not** equal to a recurring decimal?
Circle the correct answer. [1]

$\frac{2}{11}$ $\frac{2}{3}$ $\frac{3}{16}$ $\frac{7}{9}$ $\frac{5}{6}$

Examiner only

4. (a) Identical toothbrushes are sold in packs of 3 or 5.

A pack of 3 toothbrushes costs £1.44.
A pack of 5 toothbrushes costs £2.25.

Which pack of toothbrushes offers better value for money?
You must show all your working. [3]

(b) 75 ml tubes of toothpaste cost 93p each.

100 ml tubes of toothpaste offer the **same** value for money.

Calculate the cost of a 100 ml tube of toothpaste. [3]

Examiner only

5. In a game, each competitor will have 20 attempts at throwing a ball into a bucket.
They will get 1 point for every ball that lands in the bucket.

Sioned wants to keep a record of the total points for each competitor.
She decides to show the results in a table with the total points recorded in **groups of equal width**.

(a) She starts to draw a table using five groups, as shown below.

Total points	0 to 3	4 to 7	8 to 11	… to …	… to …
Number of competitors					

Explain why these groups will not be suitable. [1]

.....

.....

.....

(b) Sioned considers using the table shown below.
She decides that it is suitable for recording all the total points in **groups of equal width**.
Fill in the two missing numbers in the **top** row. [1]

Total points	0 to 6	7 to	..... to 20
Number of competitors			

.....

.....

Examiner only

(c) Finally, Sioned decides to use the groups shown in the table below.
The results for the first 100 competitors are shown in the table.

Total points	0 to 2	3 to 5	6 to 8	9 to 11	12 to 14	15 to 17	18 to 20
Number of competitors	5	10	17	22	23	12	11

One of these 100 competitors is chosen at random.

(i) What is the probability that this competitor scored 6, 7 or 8 points? [1]

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(ii) Explain why the following statement may be incorrect. [1]

The probability that this competitor scored 19 points is $\frac{11}{100}$.

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Examiner only

5. (a) Siôn has an ice cream van.

On Monday, Siôn sold three times as many ice creams as cold drinks.
He sold 50 cold drinks on Monday.
Siôn sells ice creams for £1.80 each.

Calculate the amount of money Siôn took from selling ice creams on Monday. [4]

(b) Siôn keeps ice cream in a freezer in his van.
Every hour he checks the temperature in his freezer.
He turns on his freezer at 8 a.m.
The readings he takes from 8 a.m. to 3 p.m. are listed below.

10°C 2°C –5°C –12°C –12°C –12°C –13°C –14°C

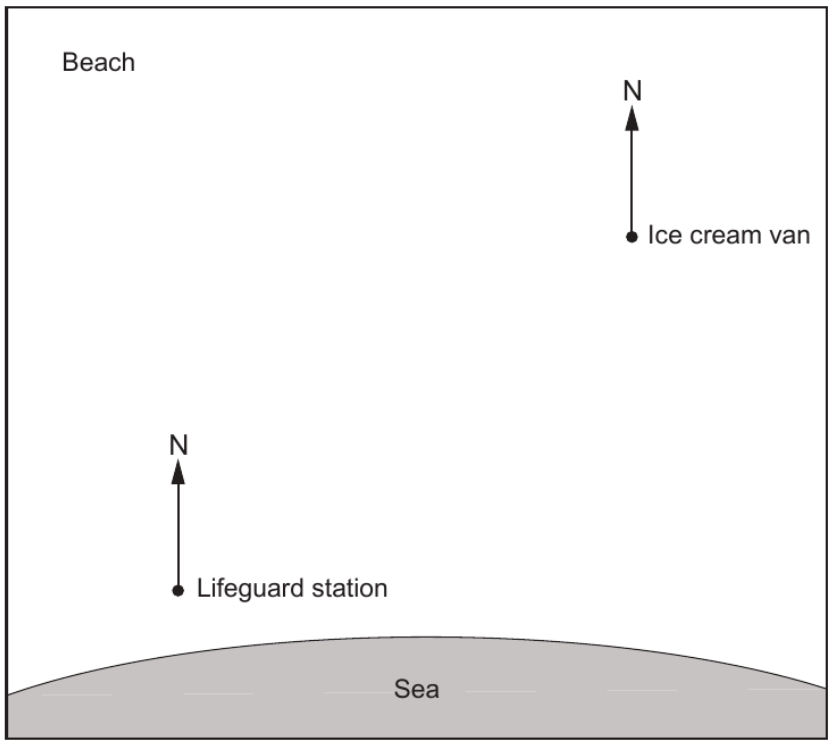
(i) Calculate the mean of these temperatures. [3]

(ii) At 4 p.m. the temperature in Siôn's freezer was recorded as –16°C.
Calculate the mean of the temperatures recorded in Siôn's freezer from 8 a.m. to 4 p.m. [2]

Examiner only

(c) Siôn parks his ice cream van on the beach, as shown on the map below.

Scale: 1 cm represents 20 metres



(i) How far is Siôn's ice cream van from the lifeguard station? [2]

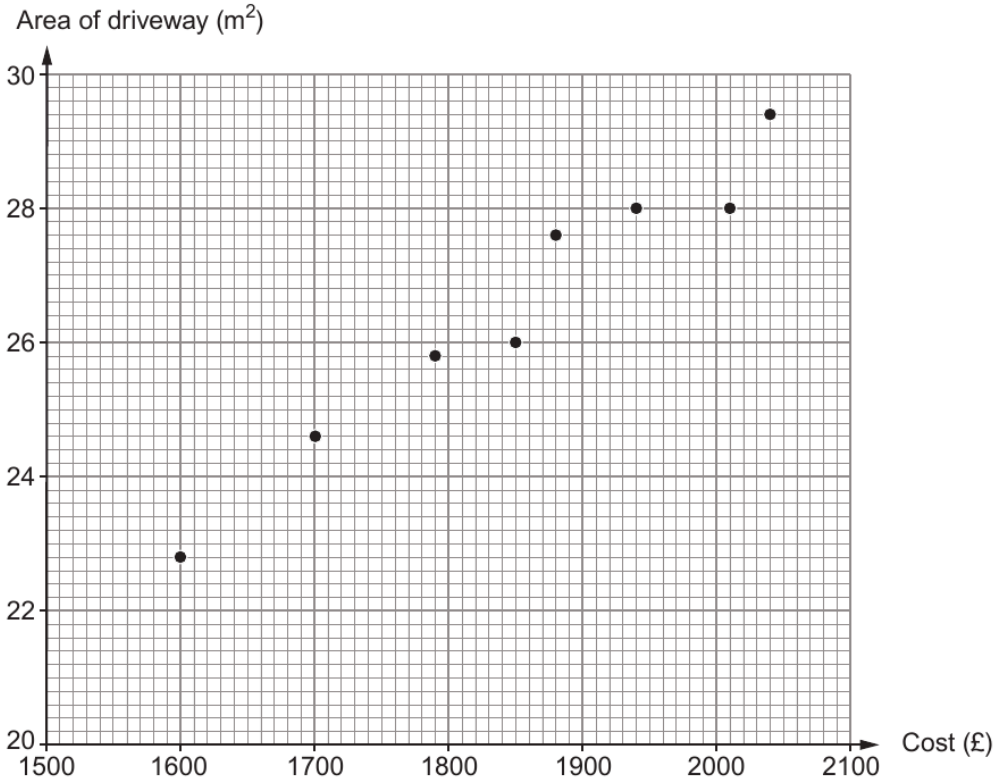
..... metres

(ii) Complete the following statement.

'The bearing of the lifeguard station from Siôn's ice cream van is .....°.' [1]

Examiner only

6. Some houses in a village have new driveways laid by DriveDown.
The scatter diagram shows the area and cost of each driveway.



(a) (i) Two of these houses have the same area of driveway.
Calculate the difference in the cost of the new driveway for these two houses. [2]

.....

.....

.....

(ii) Another house in the village has a driveway of area 25 m^2.
Estimate the cost of having a new driveway laid by DriveDown for this house. [1]

.....

Examiner only

(b) The measurements of Gwenda's driveway are shown below.

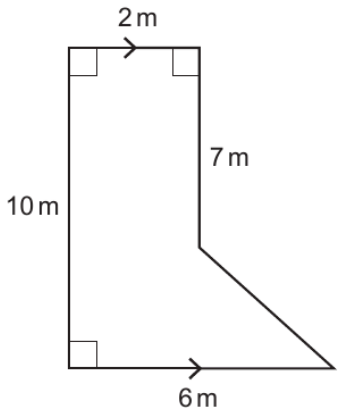


Diagram not drawn to scale

Consider the exact area of Gwenda's driveway.
Calculate an estimate of how much it would cost Gwenda to have a new driveway laid by DriveDown.
You must show all your working. [4]

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Examiner only

(c) Tanya's driveway covers an area of $23\,m^2$.
She decides to have her driveway repaired instead of having a new driveway.

Tanya thinks the repair will cost her 40% of the estimated cost of having a new driveway laid by DriveDown.
She has budgeted £575 for the repair of her driveway.
Will Tanya's budget cover the cost of repairing her driveway?

Yes ☐ No ☐

You must show all your working and give a reason for your answer. [2]

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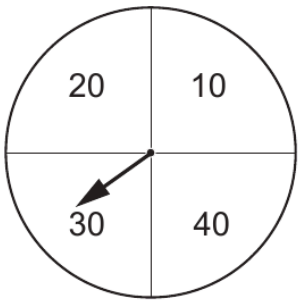
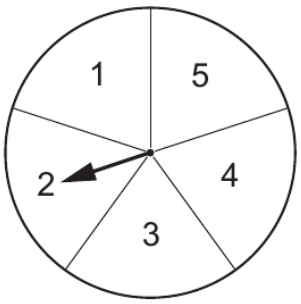
Examiner only

8. Ahmed organises a game using two fair spinners, as shown below.
The first spinner shows the values 10, 20, 30 and 40.
The second spinner shows the values 1, 2, 3, 4 and 5.





In the game, the two spinners are spun and the values shown are added to give a score.
For example, the spinners above score 32.

Ahmed charges £1 for each attempt at the game.
Any player who scores **43 or more** wins £5.

Calculate Ahmed's expected profit when this game is played 100 times. [7]

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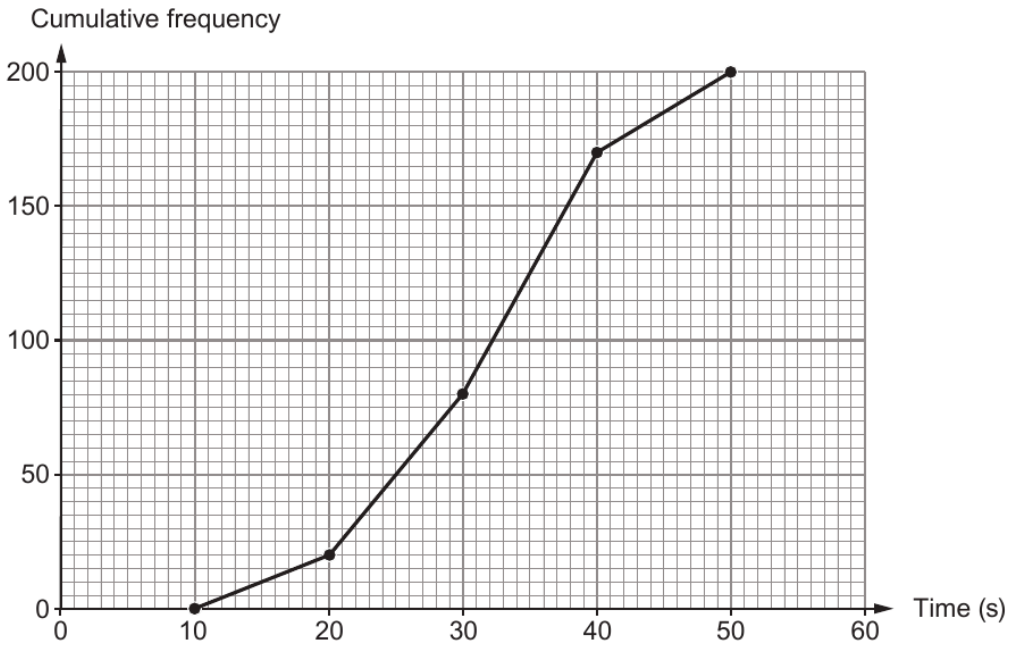
Examiner only

8. (a) On 1st June last year, 200 customers used cash to pay at Shop Lil.
The cumulative frequency diagram represents the time each of these 200 customers waited to be given change at the checkout.



(i) How many of these customers waited between 30 and 50 seconds for their change? [2]

.....

.....

(ii) Use the graph to estimate the median time these 200 customers waited for their change.
Circle your answer. [1]

24 seconds 32 seconds 38 seconds 80 seconds 100 seconds

(iii) Calculate the fraction of these 200 customers who waited 40 seconds or longer for their change.
Give your answer in its simplest form. [2]

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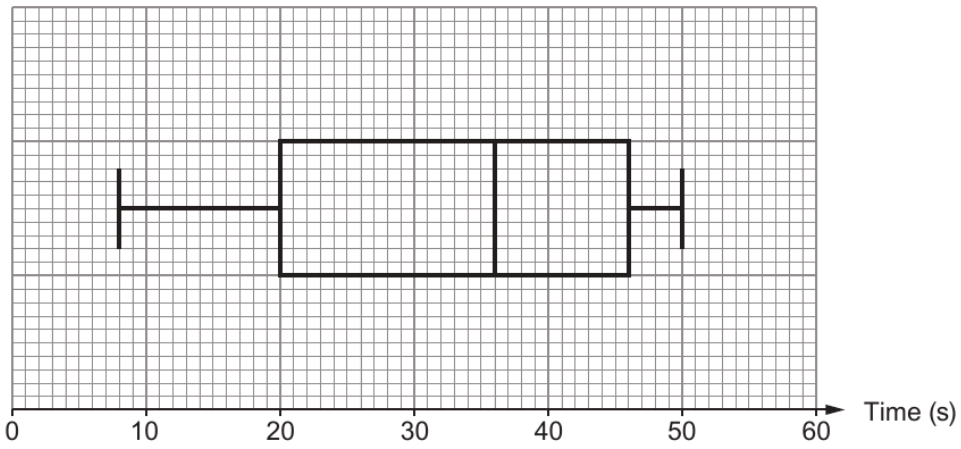
Examiner only

(b) On 1st June this year, the manager at Shop Lil drew a box-and-whisker plot of the times 200 customers waited for their change at the checkout.



Based on the results of these 200 customers, the manager made the following statements. Complete the statements.

(i) "On 1st June this year, 50% of our customers were given their change in ..... seconds or less." [1]

(ii) "On 1st June this year, the interquartile range of the times taken to give customers their change was ..... seconds." [2]

.....

.....

(c) Consider the 50 customers waiting the **longest** times to get their change on 1st June last year and this year.
Has the speed of giving change at the checkout improved since last year?

Yes ☐ No ☐

You must give a reason for your answer. [1]

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Examiner only

9. Solve each of the following equations.

(a) $\frac{x}{5} = 20$ [1]

(b) $7m + 3 = 31$ [2]

10. Evaluate 55% of 42·8. [2]

Examiner only

9. (a) Siôn has an ice cream van.

On Monday, Siôn sold three times as many ice creams as cold drinks.
He sold 50 cold drinks on Monday.
Siôn sells ice creams for £1.80 each.

Calculate the amount of money Siôn took from selling ice creams on Monday. [4]

(b) Siôn keeps ice cream in a freezer in his van.
Every hour he checks the temperature in his freezer.
He turns on his freezer at 8 a.m.
The readings he takes from 8 a.m. to 3 p.m. are listed below.

10°C 2°C –5°C –12°C –12°C –12°C –13°C –14°C

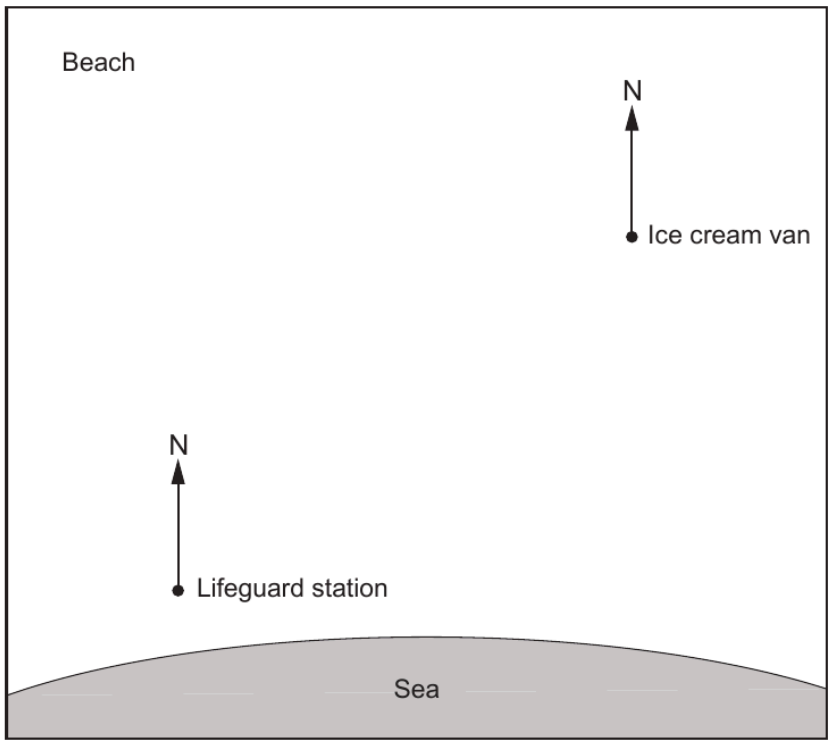
(i) Calculate the mean of these temperatures. [3]

(ii) At 4 p.m. the temperature in Siôn's freezer was recorded as –16°C.
Calculate the mean of the temperatures recorded in Siôn's freezer from 8 a.m. to 4 p.m. [2]

Examiner only

(c) Siôn parks his ice cream van on the beach, as shown on the map below.

Scale: 1 cm represents 20 metres



(i) How far is Siôn's ice cream van from the lifeguard station? [2]

..... metres

(ii) Complete the following statement.

'The bearing of the lifeguard station from Siôn's ice cream van is .....°.' [1]

END OF PAPER

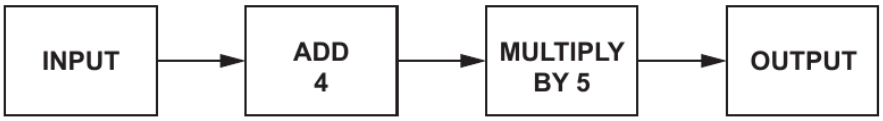
Examiner only

17. (a) Express 96 as a percentage of 300. [2]

(b) Share £48 in the ratio 1 : 7. [2]

Examiner only

1. A number machine is shown below.



Complete the table below. [5]

INPUT	OUTPUT
–7	
	–100
2·5	
n	

Space for working:

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2. **Estimate** the value of 33 × 7940.
You must show your approximations in your working. [2]

Examiner only

8. (a) A small packet contains four Caru chocolate cakes.

The four cakes have a total mass of 84 g.

(i) The following information is written on the packet:

'Caru chocolate cakes contain 600 calories per 100 g.'

Simon aims for a calorie intake of 2400 calories per day.

Today Simon eats **one** Caru chocolate cake.
What percentage of his daily calorie intake is this cake?
You must show all your working. [5]

(ii) Caru chocolate cakes contain only fat, carbohydrate, protein and salt.

The ratio of the masses is
fat : carbohydrate : protein : salt = 1360 : 2725 : 515 : 4

How many grams of protein are there in an 84 g packet of four cakes?
Give your answer correct to 2 significant figures. [3]

Examiner only

(b) Cheryl keeps fit by running every day.

(i) Cheryl has a mass of 143 pounds.
What is Cheryl's mass in kg? [2]

..... kg

(ii) Cheryl burns 690 calories per hour when she runs.
Eating a banana gives Cheryl 92 calories of energy.

Cheryl wants to burn off the energy in this banana.
For how many minutes would she need to run?
You must show all your working. [3]

..... minutes

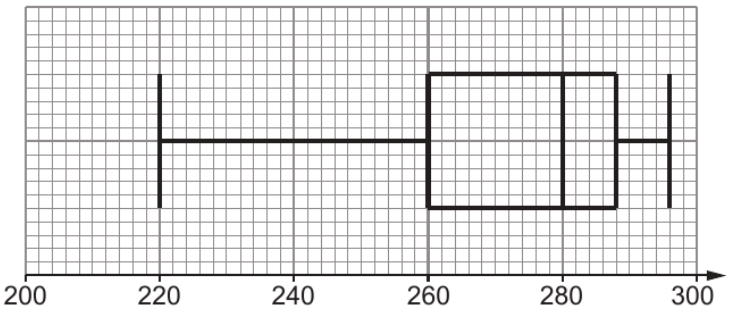
(iii) Cheryl runs at an average speed of 9 km per hour.
Yesterday morning she ran for 38 minutes.
Calculate the distance Cheryl ran yesterday morning. [3]

..... km

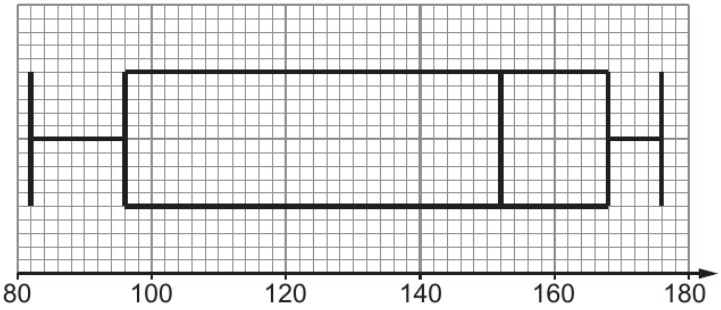
11. Geraint has collected data on some adult gulls.
He weighed 400 slender-billed gulls, 400 little gulls, and 400 black-headed gulls.

He has constructed box-and-whisker diagrams to display the masses of the gulls.

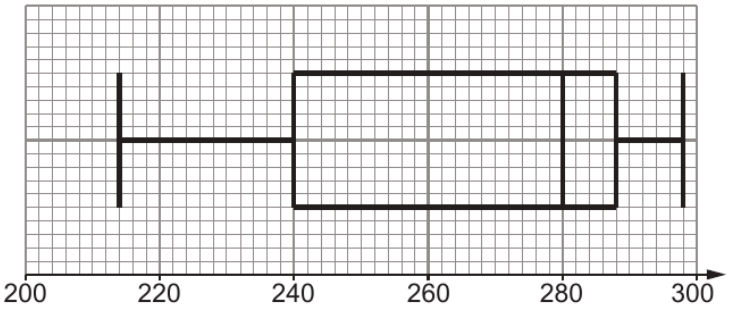
Slender-billed gulls



Little gulls



Black-headed gulls



Examiner only

(a) What is the range of the masses of the slender-billed gulls? [1]

.....

Range of the masses ..... g

(b) How many of the little gulls have a mass greater than or equal to 96 g? [2]

.....

.....

.....

(c) Write down the percentage of little gulls that have a mass greater than or equal to 168 g. [1]

..... %

(d) From the box-and-whisker diagrams, Geraint notices that two of the types of gull have the same median mass.
He makes the following statement about these two types of gull.

"The diagrams suggest that one of these two types of gull generally has a greater mass than the other."

(i) Which type of gull appears to have the greater mass? [1]

.....

(ii) Geraint based his statement on **one** of the following measures.
Which measure did Geraint use?
Circle your answer. [1]

Range Median Lowest mass Lower quartile Upper quartile

Examiner only

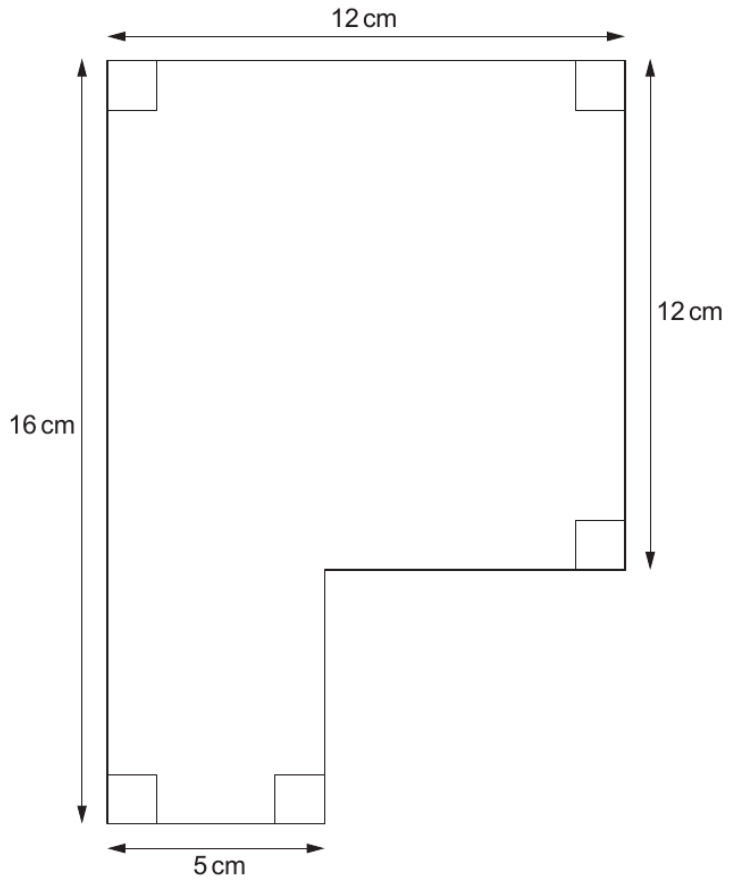
13. (a) Calculate the following.

$$\frac{17}{50} \text{ of } 24{\cdot}5 + 78\% \text{ of } 103{\cdot}5$$

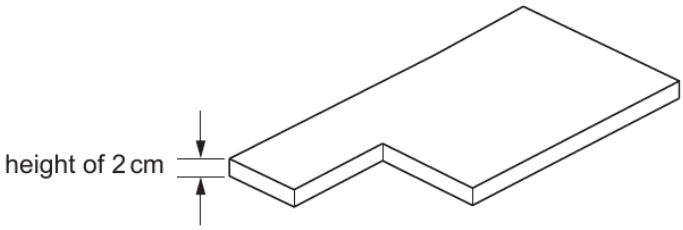
You must show all your working. [2]

(b) Express £19.44 as a percentage of £36. [2]

14. The diagram below shows the cross-section of a solid.



The solid has a height of 2 cm.



Diagrams not drawn to scale

Examiner only

Find the volume of the solid.
You must show all your working. [4]

Examiner only

15. Line AB is drawn below.
Point C lies **below** the line AB.
The region in which point C is located is such that:

- $A\hat{B}C \leqslant 30°$
- line $BC \leqslant 5\,\text{cm}$.

Use a ruler and a pair of compasses to **construct** suitable arcs and lines to show this region.
You must show your construction arcs.
Shade the region in which point C is located. [4]