Name	Date started	Target end date

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

Finding perimeters and areas of rectangles, triangles, parallelograms, trapezia and composite 2-D shapes by splitting or subtracting standard shapes.

REVISE
.wales

F1.16 — Perimeter, area & composite 2-D shapes

Spec 3.6.1 — Unit 1 (calculator allowed)

Finding perimeters and areas of rectangles, triangles, parallelograms, trapezia and composite 2-D shapes by splitting or subtracting standard shapes. 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: ~1 hours 32 minutes

*Derived from the GCSE Higher pace of **~1.5 min/mark** (61 marks across 59 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).

Perimeter, area & composite 2-D shapes — what the new spec asks

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

Perimeter 3.6.1

- Find the perimeter of a rectangle, triangle or other polygon.
- Find the perimeter of a composite shape from given lengths.
- Find a missing side length given the perimeter.

Standard areas 3.6.1

- Find the area of a rectangle and square.
- Find the area of a triangle using ½ base × height.
- Find the area of a parallelogram or trapezium using the given formula.

Composite areas 3.6.1

- Split a composite shape into standard pieces and sum the areas.
- Subtract a cut-out region from a surrounding shape.
- Deduce unknown lengths from the rest of a diagram.

Exam strategy 3.6

- Mark all known lengths on the diagram before computing.
- Show each sub-area separately, then total.
- Always state units (cm^2, m^2) in the final answer.

Crib sheet »

Perimeter, area & composite 2-D shapes in one page

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

Perimeter

Sum of every side around the boundary.

Same unit as length: cm, m, mm.

For a rectangle: P = 2(l + w).

Rectangle & square

$$\text{area} = \text{length} \times \text{width}$$

Square: A = side^2.

Units: cm^2, m^2.

Triangle area

$$A = \tfrac{1}{2} \times \text{base} \times \text{height}$$

Height is perpendicular to the chosen base, not a slanted side.

Parallelogram & trapezium

$$\text{parallelogram: } A = \text{base} \times \text{height}$$

$$\text{trapezium: } A = \tfrac{1}{2}(a + b) \times h$$

a, b = the two parallel sides.

Composite shapes

Split into rectangles and triangles, find each area, add them.

Or subtract a cut-out from a bigger rectangle.

Find missing side lengths from opposite sides.

Common traps

- Using a slanted side as the triangle height.
- Forgetting the ½ for triangles.
- Mixing units within one shape (m with cm).

Examiner only

6. *(a)* Find the value of $\frac{235 \times 20^2}{17}$.

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

.....

.....

(b) Find the value of $\sqrt{56 - 37} + 28$.

Write your answer correct to 2 decimal places. [2]

.....

.....

7. Find the value of $8x + 3y$, when $x = 3$ and $y = -2$. [2]

.....

.....

.....

Examiner only

7. A dice is thrown 50 times.
The number shown on the dice is recorded after each throw.
The table below shows the results recorded.

Number shown on dice	1	2	3	4	5	6
Frequency	9	7	8	7	6	13

(a) The relative frequency of throwing a 1 was calculated as $\frac{9}{50} = 0{\cdot}18$.

What was the relative frequency of throwing a 6?
Give your answer as a decimal. [1]

(b) The number 4 was thrown 7 times in the first 50 throws.
Using **this fact**, calculate how many times you would expect a 4 to be thrown when this dice is thrown 3000 times. [2]

(c) How many times would you expect a 4 to be thrown when a **fair** dice is thrown 3000 times? [2]

Examiner only

10. Ceri has a set of cards.
Each of her cards is labelled North, East, South or West.

(a) Ceri chooses one card at random from her set of cards.
Complete the table below to find the probability of Ceri choosing a card labelled West. [2]

Label	North	East	South	West
Probability	0·4	0·25	0·2	

(b) Ceri chooses one card at random from her set of cards.

What is the probability that the card is labelled East or South? [2]

(c) Sasha has an identical set of cards.
Ceri and Sasha each choose one card at random from their set of cards.

What is the probability that they both choose a card labelled North? [2]

Examiner only

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

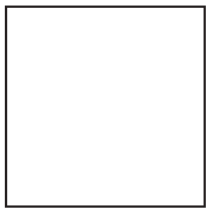


Diagram not drawn to scale

The perimeter of a square is 56 cm.
Calculate the area of the square.
You must show all your working. [3 + 2 OCW]

Examiner only

19. *ABCDE* is a regular pentagon with centre *O*.

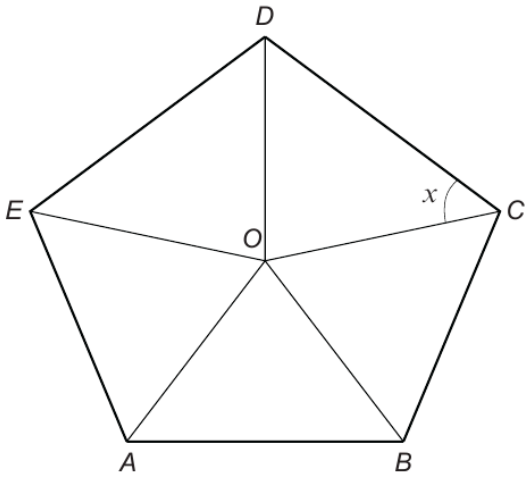
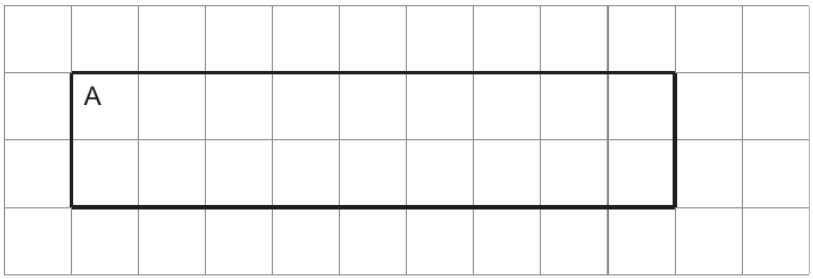


Diagram not drawn to scale

Calculate the size of angle x.
You must show all your working. [4]

Examiner only

4. *(a)* Rectangle A is drawn on the centimetre square grid below.



(i) What is the perimeter of rectangle A? [1]

.....

.....

Perimeter = ...

(ii) What is the area of rectangle A?
Give the units of your answer. [2]

.....

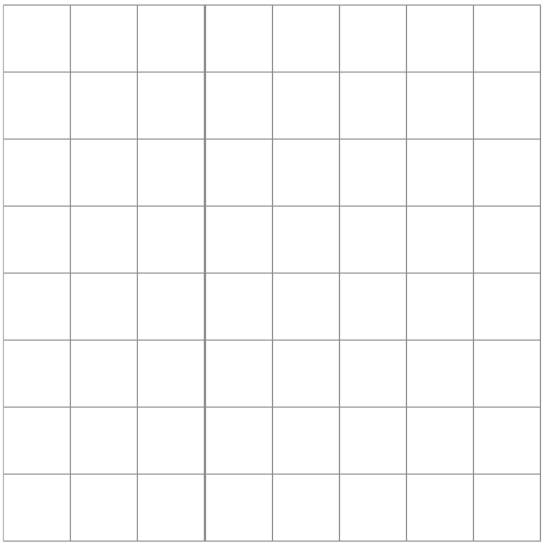
.....

Area = ...

Examiner only

(b) Rectangle B has the same area as rectangle A and fits on the centimetre square grid below.
Rectangle B has a different perimeter from rectangle A.

Draw rectangle B on the grid below. [1]



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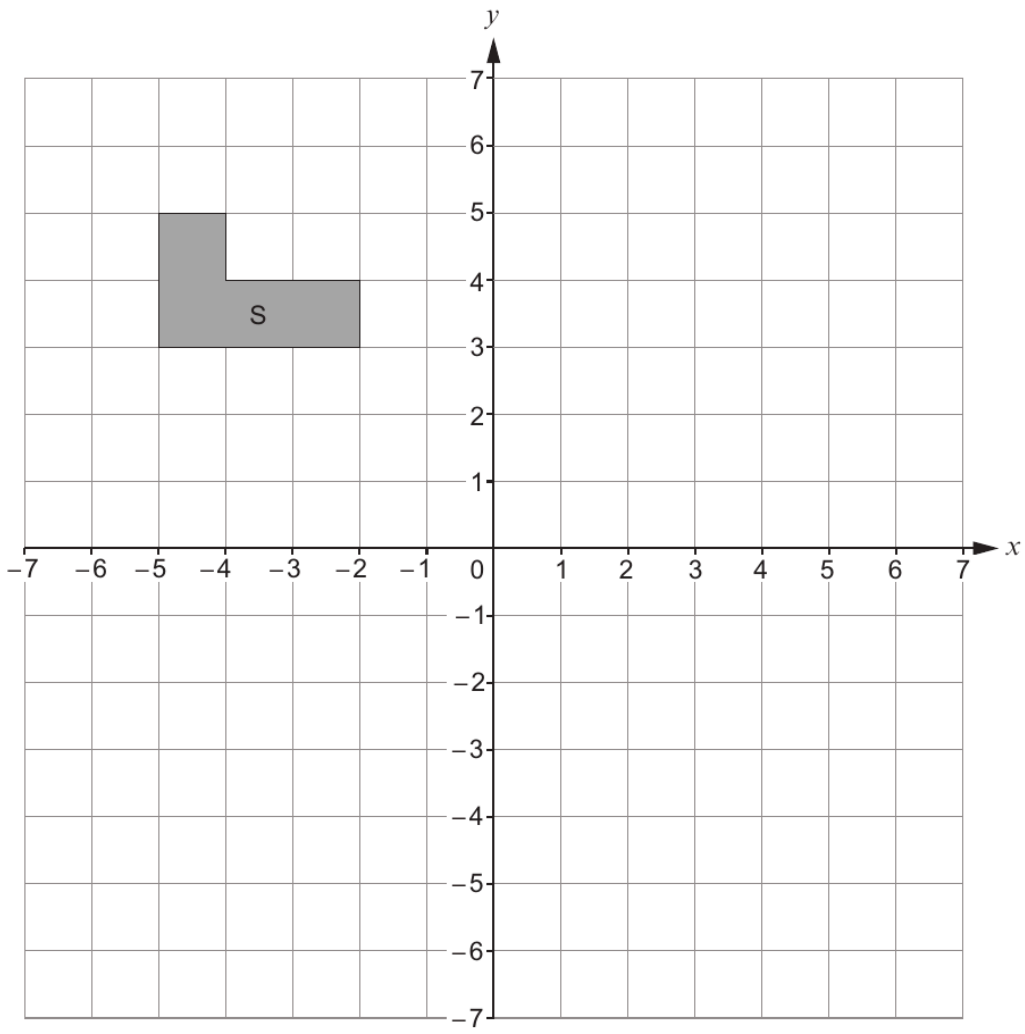
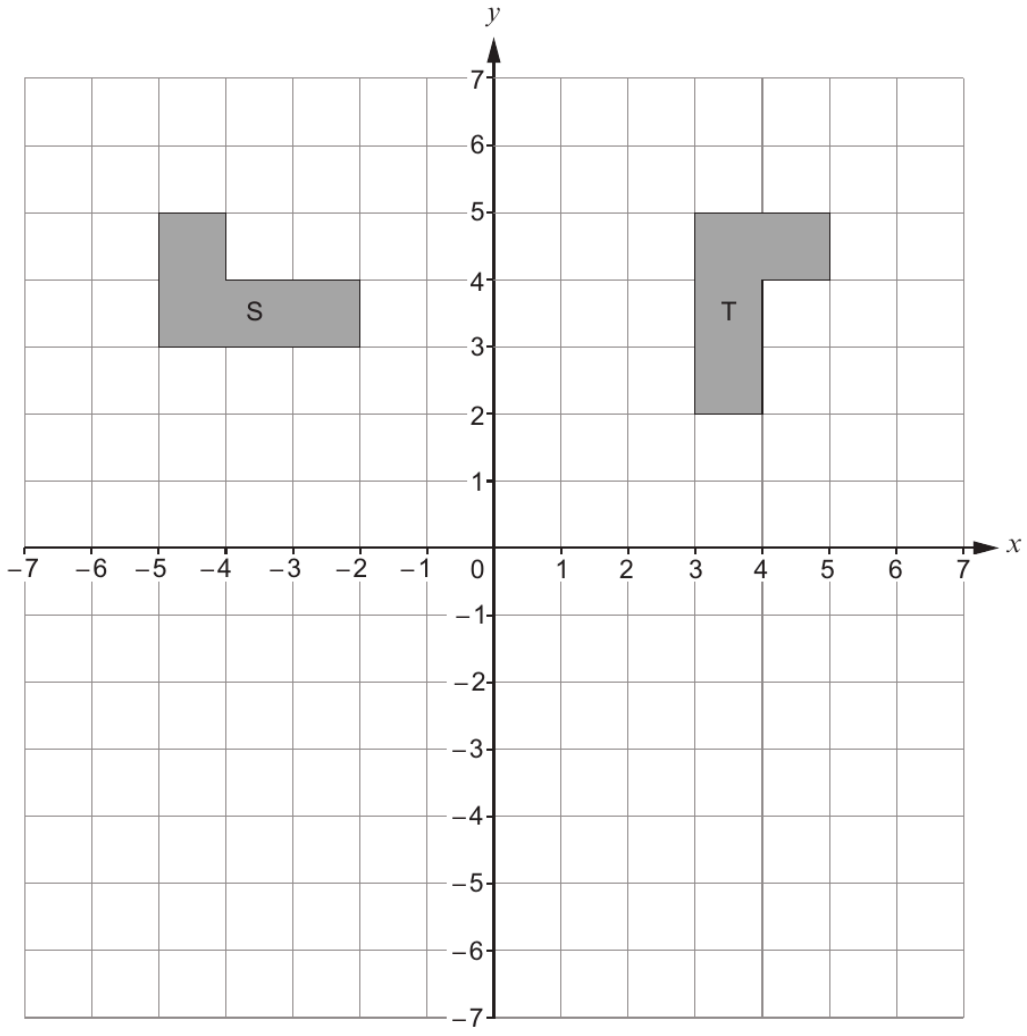
Examiner only

9. *(a)* Reflect the shape S in the line $y = 1$. [2]



Examiner only

(b) Describe **fully** the **single** transformation that transforms shape S to shape T. [3]



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Examiner only

9. The diagram below shows an equilateral triangle ABC with $AB = (4x - 7)$ cm.

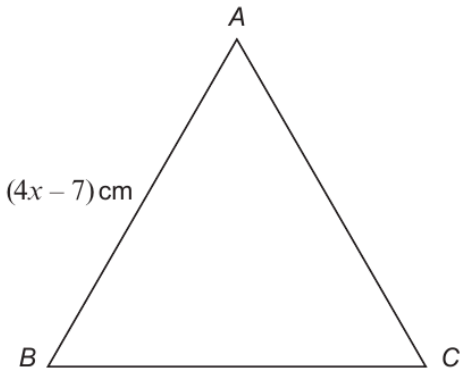


Diagram not drawn to scale

The perimeter of the triangle is 27 cm.
Calculate the value of x. [3]

Examiner only

10. Using only the numbers in the following list,

10 11 12 13 14 15 16 17 18 19 20

write down

(a) two **prime** numbers that have a sum of 32, [2]

The two numbers are ..... and .....

(b) a number that is a multiple of **both** 4 **and** 6, [2]

(c) a number that is a factor of 51. [1]

11. Circle the correct answer for each of the following.

(a) 16 km is approximately equal to [1]

5 miles 8 miles 10 miles 16 miles 32 miles

(b) 2·2 lb is approximately equal to [1]

1 kg 2 kg 4·4 kg 5 kg 10 kg

(c) 4 litres is approximately equal to [1]

4 pints 5 pints 6 pints 7 pints 8 pints

Examiner only

17. In the diagram below, *ABCE* is a square whose perimeter is 28 cm.
CDE is a right-angled triangle whose area is 35 cm^2.

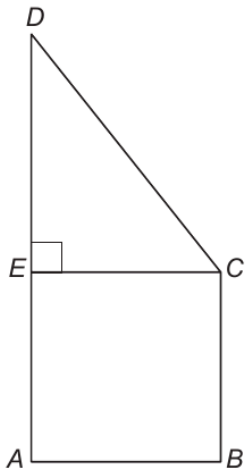


Diagram not drawn to scale

Calculate the length of *DE*.
You must show all your working. [4]

Examiner only

19. The diagram below shows an equilateral triangle ABC with $AB = (4x - 7)$ cm.

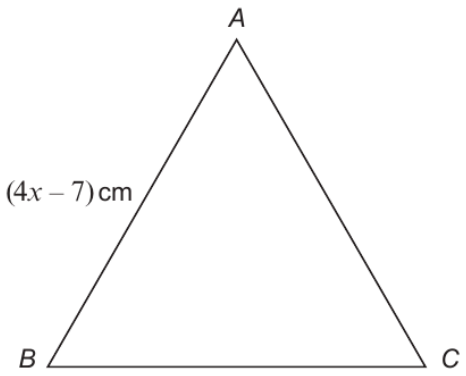
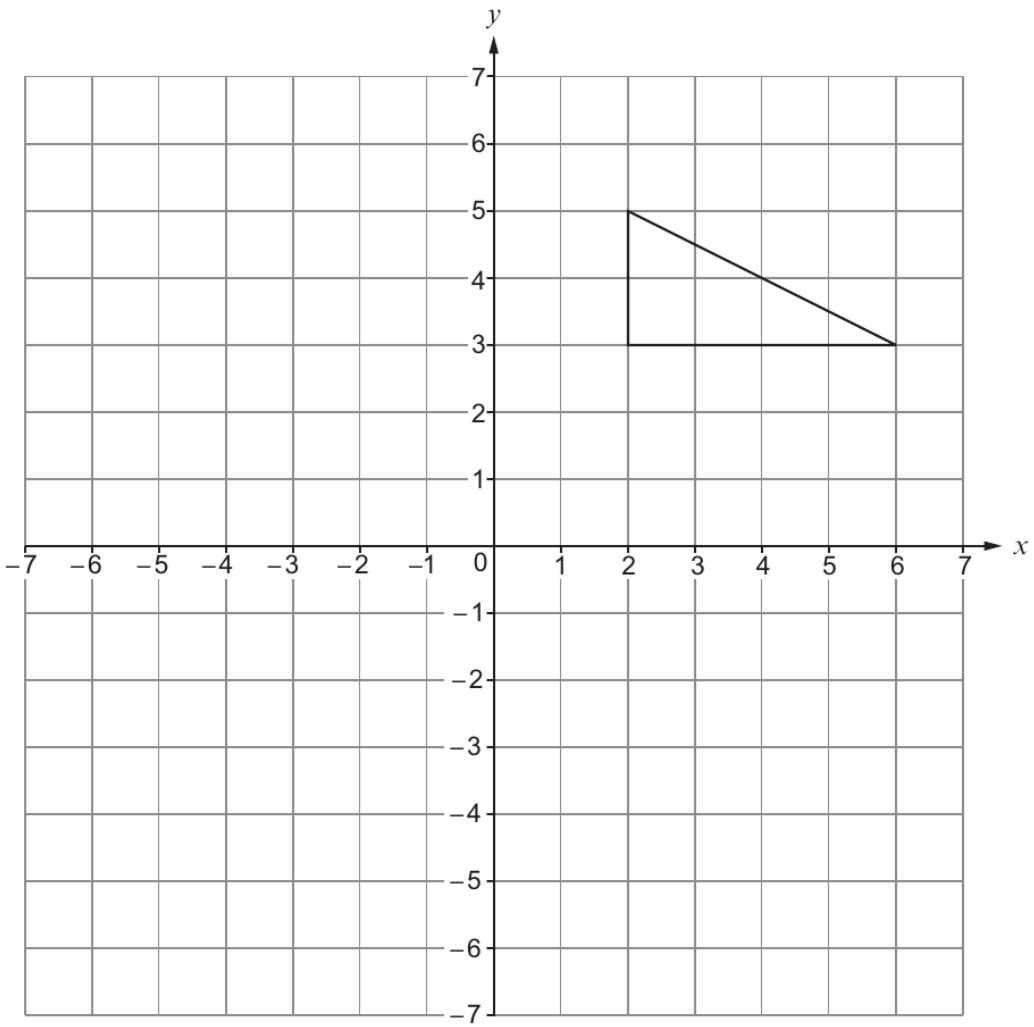


Diagram not drawn to scale

The perimeter of the triangle is 27 cm.
Calculate the value of x. [3]

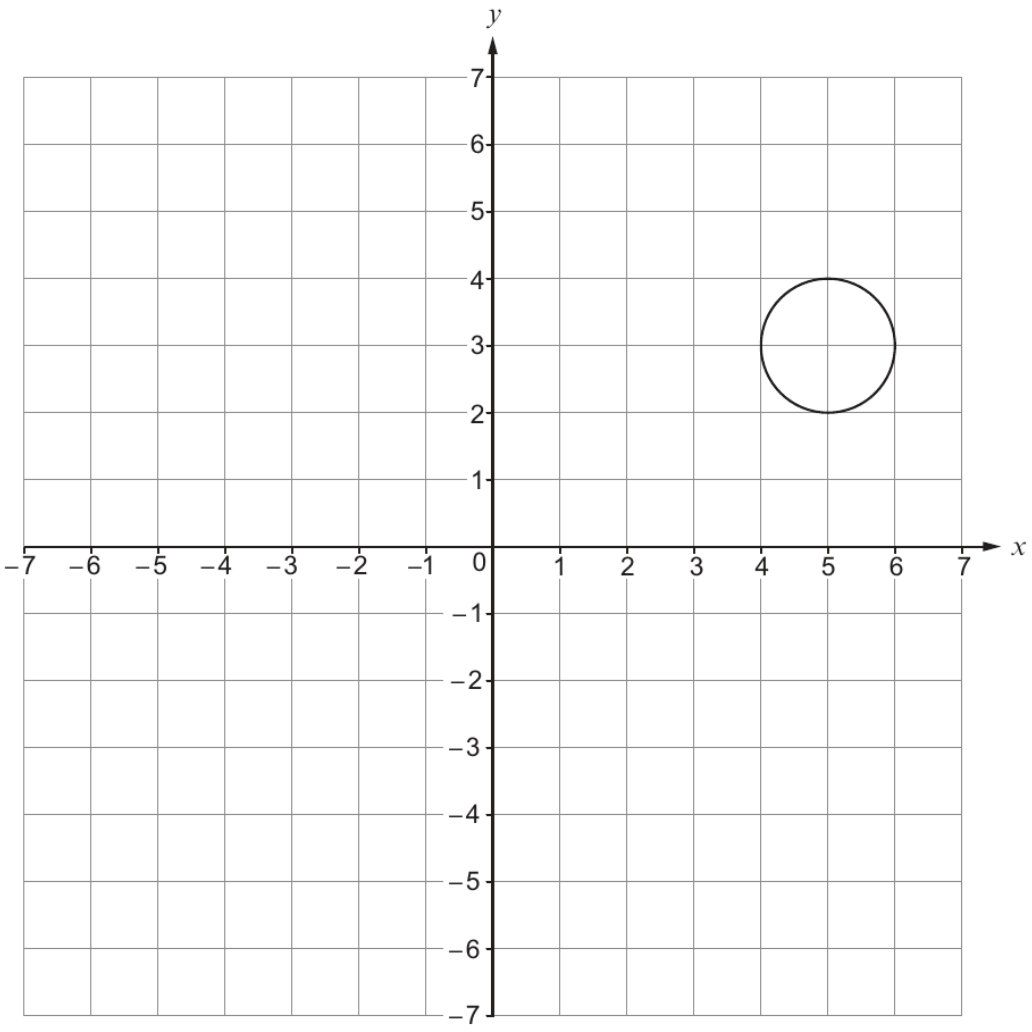
Examiner only

9. *(a)* Reflect the triangle in the x-axis.
Then translate the **reflected triangle** 5 squares left and 4 squares up. [2]



Examiner only

(b) The circle shown below is rotated 90° anticlockwise about the origin.



What are the coordinates of the centre of the circle at its new position?
Circle the correct answer. [1]

(3, −5) (−5, −3) (−3, −5) (−3, 5) (3, 5)

Examiner only

9. Find 57% of 83·5.
Give your answer correct to 1 decimal place. [3]

10. A cuboid has a volume of 97·6 cm^3.
The length of the cuboid is 6·1 cm and its width is 5 cm.
Calculate the height of the cuboid. [2]

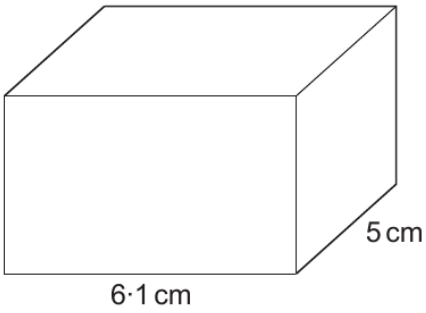


Diagram not drawn to scale

Examiner only

9. *ABCE* is a square.

Calculate the area of the shape *ABCDE* shown below. [5]

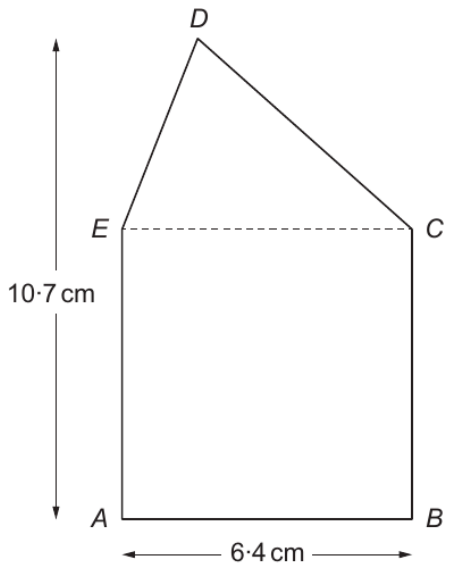


Diagram not drawn to scale

Examiner only

11. In the diagram below,

- *ABCD* is a square,
- *ADE* is an equilateral triangle,
- *EAF* is a straight line.

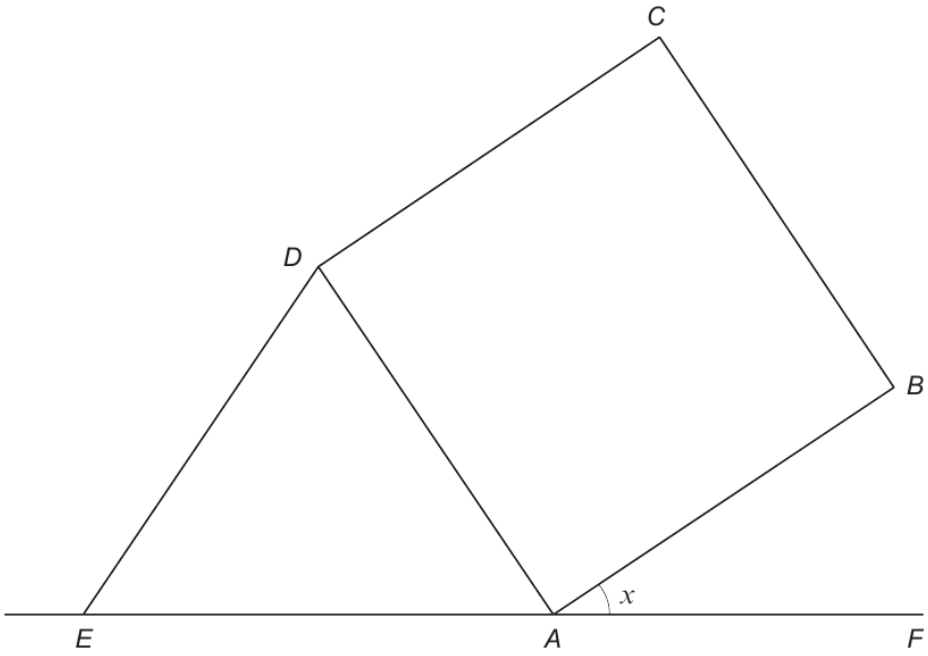


Diagram not drawn to scale

Calculate the size of angle x.
You must show all your working. [3]

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.....

.....

x = ... °

Examiner only

8. Alison and Sarfraz play a game. They each have a different bag of cards.

Alison has the following cards in her bag.

Sarfraz has the following cards in his bag.

They each take a card at random from their own bag. They make a note of the letter, and return the card to the bag.

They each do this 100 times.

Who do you think is likely to choose the letter R more often?

Alison ☐ Sarfraz ☐

You must explain your decision and show all your working. [4]

Examiner only

9. *ABCD* is a rectangle.
AB is parallel to *EF*.
AC, *CE* and *DG* are straight lines.

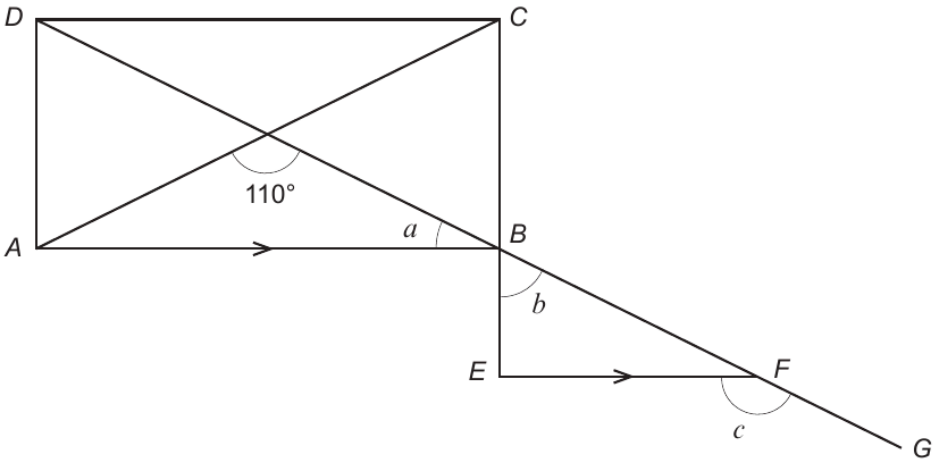


Diagram not drawn to scale

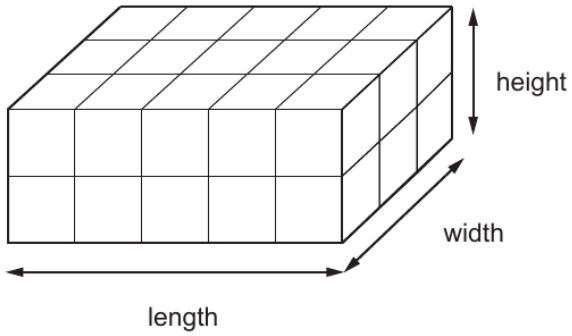
Find the size of each of the angles a, b and c. [4]

a = ... ° b = ... ° c = ... °

Examiner only

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

Cuboid A is made up of a number of cubes as shown below.
Each edge of each cube is 1 cm long.



A different cuboid, Cuboid B, has the same length and width as Cuboid A.
The height of Cuboid B is three times the height of Cuboid A.

What is the volume of Cuboid B?
You must show all your working. [3 + 2 OCW]

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Examiner only

9. *(a)* Write down the nth term of the following sequence. [2]

8, 11, 14, 17, ...

(b) Make t the subject of the formula $r = 3t - 8$. [2]

(c) A rectangle has a length of $(x + 5)$ cm and a width of $(2x - 3)$ cm.
Its perimeter is 46 cm.

Calculate the value of x. [4]

Examiner only

9.

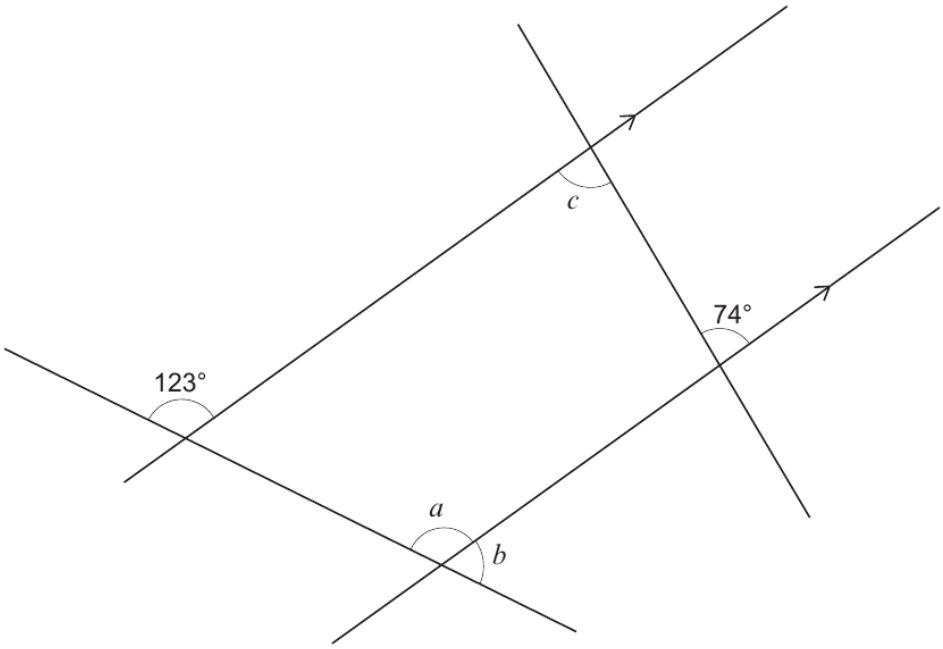


Diagram not drawn to scale

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

.....

.....

.....

.....

.....

a = ... ° b = ... ° c = ... °

Examiner only

20. 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]

END OF PAPER

Examiner only

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

In the diagram below, *ABCD* is a rectangle with *AB* = 5 cm.
ABP is a quarter of a circle with centre *A*.
AP = *PD*.

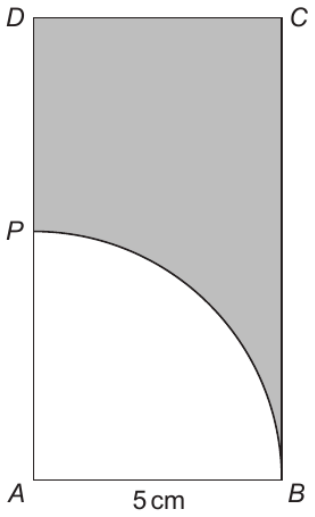


Diagram not drawn to scale

Calculate the area of the shaded section shown above.
You must show all your working. [5 + 2 OCW]

Examiner only

20. You are given that $543 \times 17 = 9231$.

(a) What is the value of $5{\cdot}43 \times 1{\cdot}7$?
Circle the correct answer. [1]

0·9231 9·231 92·31 923·1 9231

(b) What is the value of $\frac{9231}{54{\cdot}3}$?

Circle the correct answer. [1]

0·17 1·7 17 170 1700

(c) What is the value of $\frac{9231}{543 \times 1{\cdot}7}$?

Circle the correct answer. [1]

0·1 1 10 100 1000

END OF PAPER

Examiner only

8. Find the value of each of the following.

(a) 4·8 squared [1]

(b) The square root of 62·41 [1]

(c) 4% of 325 [2]

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

Oliver thinks of a number between 40 and 95.

Oliver's number is a multiple of 9.
It is an even number.

$\frac{1}{3}$ of Oliver's number is a multiple of 5.

What is Oliver's number?
You must show all your working. [3 + 1 OC]

Examiner only

9. *(a)* Express 54 miles as a percentage of 300 miles. [2]

(b) A car travels 100 miles in 2 hours and 30 minutes.
Calculate its average speed in miles per hour. [3]

Examiner only

9. The nth term of a sequence is given by $1{\cdot}7n - 3$.

(a) Write down the first three terms of this sequence. [2]

1st term = ... 2nd term = ... 3rd term = ...

(b) Which **term** will be the first whole number in this sequence? [1]

First whole number is the .....th term.

10. A rectangle has sides of length $2(3a - 7)$ cm and $(5a + 4)$ cm.

Diagram not drawn to scale

Form an expression, in terms of a, for the perimeter of this rectangle.
You must simplify your expression. [3]

Examiner only

10. *(a)* Calculate the size of angle x in the right-angled triangle shown below. [2]

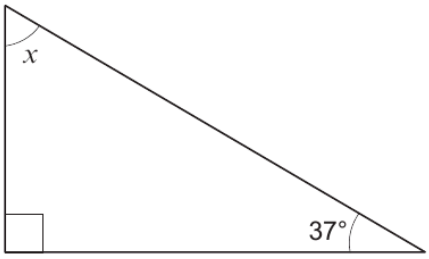


Diagram not drawn to scale

(b) *ABCD* is a quadrilateral.
BE is a straight line.
Calculate the size of angles a and b. [3]

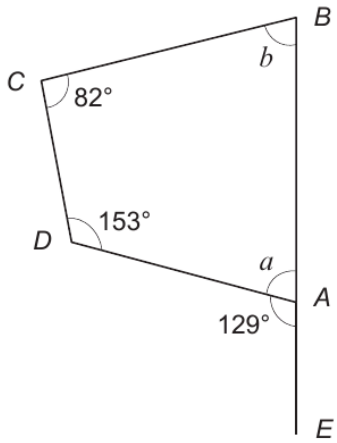
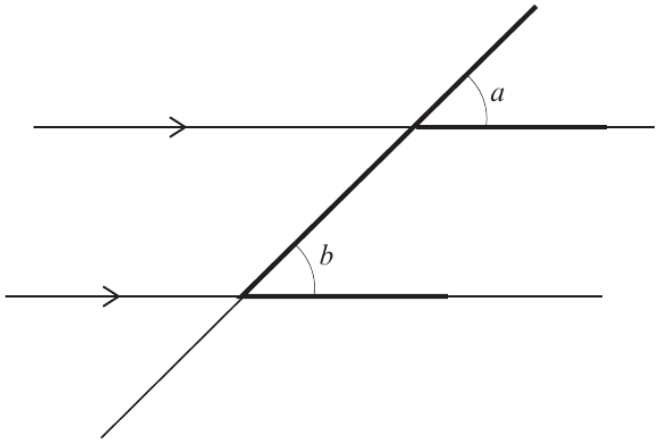


Diagram not drawn to scale

a = ... ° b = ... °

Examiner only

8. What is the correct name for the relationship between angle a and angle b in the diagram?
Circle your answer. [1]



corresponding angles | alternate angles | interior angles | parallel angles | opposite angles

9. A car travels 129·5 miles in 3 hours 30 minutes.
Calculate the average speed of the car.
Give your answer in miles per hour. [3]

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Examiner only

10.

Diagram not drawn to scale

ABC is a straight road, where the ratio *AB* : *BC* = 3 : 4.
AC = 56 km.

Calculate the length of *BC*.
Give your answer in **miles**.
You must show all your working. [4]

Length of *BC* = ... **miles**

Examiner only

11.

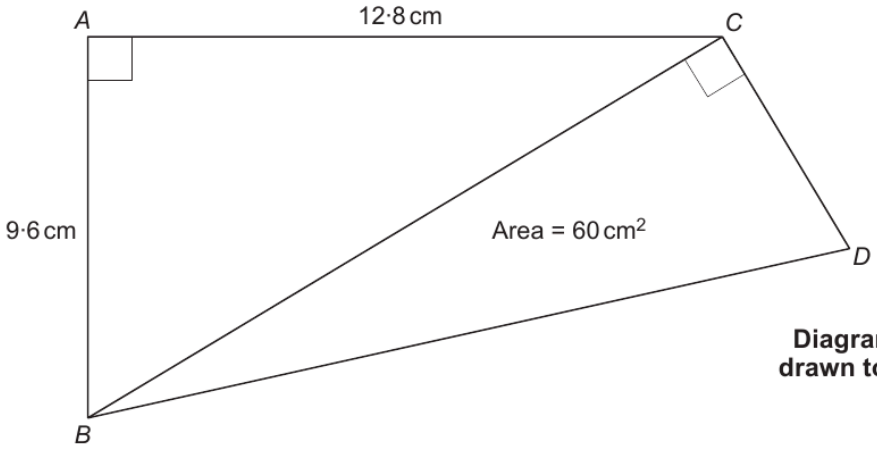


Diagram not drawn to scale

In the diagram above, the area of triangle *BCD* is 60 cm^2.
Calculate the length of *CD*.
You must show all your working. [6]

Examiner only

15. The length of a rectangle is double its width.
The area of the rectangle is greater than 60 cm^2.
The perimeter of the rectangle is less than 40 cm.

Give a possible width and length of the rectangle.
Calculate the area and the perimeter of this rectangle.
You must show all your working.

Use the answer spaces to clearly identify which is the area and which is the perimeter. [5]

Width = ... cm Length = ... cm

Area = ... cm^2 Perimeter = ... cm

Examiner only

9. Shelley thinks of a number.

$\frac{1}{5}$ of her number is 46.

What is Shelley's number? [2]

.....

.....

.....

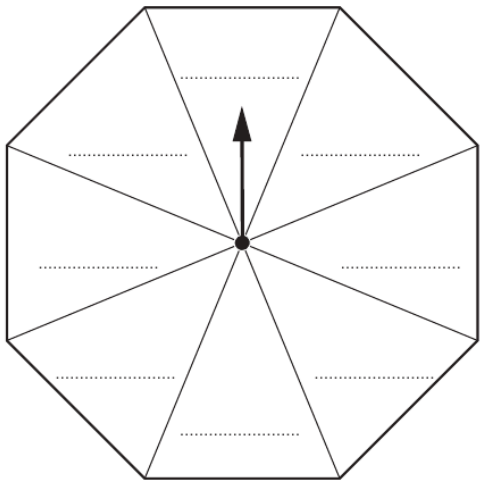
.....

10. Mark is making an 8-sided spinner.
All of the sections on his spinner are identical.

Mark is going to label each of the sections with one of three colours: blue (B), yellow (Y) or red (R).

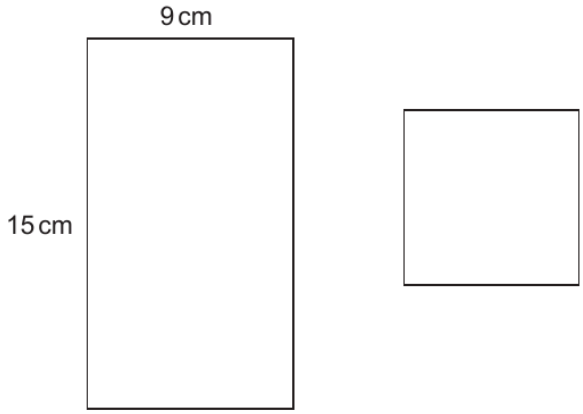
Label the spinner below so that when the spinner is spun:

- landing on red and landing on blue are **equally likely**
  AND
- it is **likely** that the spinner lands on yellow. [2]



Examiner only

13. A rectangle and a square are shown below.



Diagrams not drawn to scale

The total area of the two shapes is 184 cm^2.
Find the **perimeter** of the square. [5]

Examiner only

13. *A*, *B* and *C* are points on the circumference of a circle with centre *O*.
The length of *BC* is 10 cm.
The diameter of the circle is 18 cm.

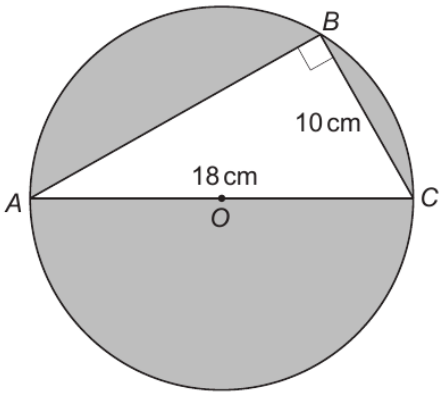


Diagram not drawn to scale

Calculate the shaded area.
You must show all your working. [7]

Examiner only

9. (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

9. (a)

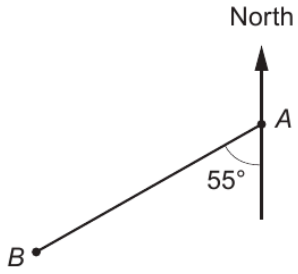


Diagram not drawn to scale

(i) What is the bearing of point *B* from point *A*? [1]

.....

(ii) What is the bearing of point *A* from point *B*? [1]

.....

(b) Points *P*, *Q*, *R* and *S* are all 5 km from point *X*.

P is on a bearing of 005° from *X*.
Q is on a bearing of 100° from *X*.
R is on a bearing of 240° from *X*.
S is on a bearing of 355° from *X*.

Which **two** of the four points *P*, *Q*, *R* and *S* are closest to each other? [1]

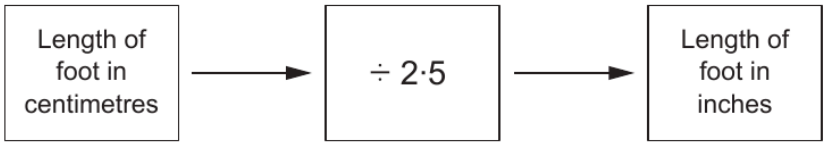
Space for sketch

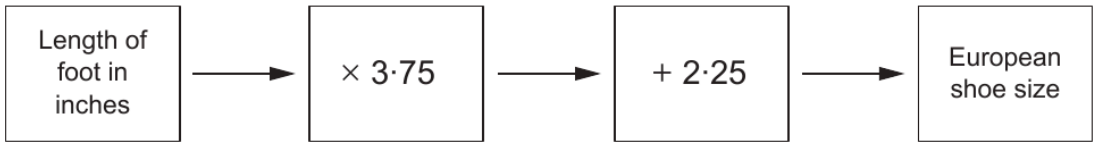
The two points closest to each other are ..... and ..... .

Examiner only

4. Alys is buying a pair of shoes online from a company in Italy.
The shoes are labelled with European sizes.
Alys uses the rules below to calculate her European shoe size.

Alys measures the length of her foot as 22·5 cm.





Alys thinks that she will be a European shoe size 37.

Is Alys correct?

Give a reason for your answer. [3]

Yes ☐ No ☐

.....

.....

.....

.....

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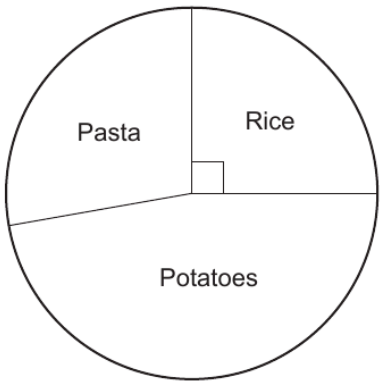
.....

Examiner only

6. In a survey, 540 people were asked if they preferred pasta, rice or potatoes.
They were asked to choose just one preference.
The results are displayed in the accurately-drawn pie chart below.



(a) How many people preferred rice? [2]

..... people

(b) The sector for potatoes on the pie chart is to be split.
40% of the people who chose potatoes said they preferred chips.

What will be the size of the angle in the sector for **chips**?
You must show all your working. [3]

..... °

(c) 540 people took part in the survey. $\frac{7}{10}$ of these people were children.
How many people who took part in the survey were **not** children? [2]

Number of people who were **not** children .....

Examiner only

6. Rhodri is organising a 21st birthday party.

(a) Confetti for the party is packed in small boxes.
Each box is in the shape of a triangular prism.
The cross-section of each box is an isosceles triangle.
The measurements are shown on the diagram below.

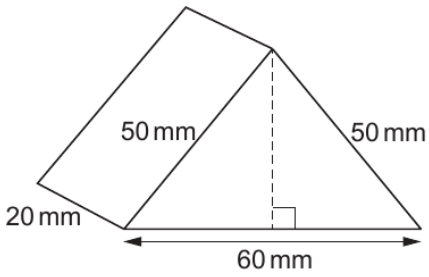


Diagram not drawn to scale

(i) Show that the perpendicular height of the cross-section of a confetti box is 40 mm.
You must show all your working. [3]

(ii) This is the label on a confetti box.

> The volume of this box is at least 20000 mm^3.

Calculate the volume of a confetti box to show that the statement on the label is correct. [3]

Examiner only

7. (a) Solve the following equations.

(i) $p+17=29$ [1]

(ii) $52-n=38$ [1]

(b) How many centimetres are there in 24·8 metres? [1]

8.

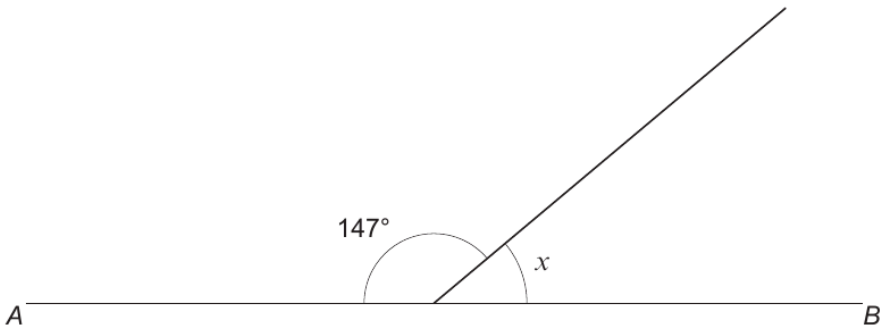


Diagram not drawn to scale

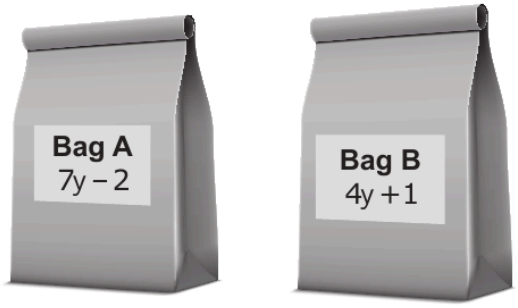
AB is a straight line.

Calculate the size of angle x. [2]

x = ... °

Examiner only

8. There are $7y - 2$ counters in Bag A.
There are $4y + 1$ counters in Bag B.



9 counters are added to Bag B.
There are now the same number of counters in each bag.

Form an equation in terms of y.
Solve the equation to find the value of y.
You must show all your working. [4]

9. A cup contains some tea.

Elsie drinks $\frac{5}{7}$ of the tea.

There are 44 ml of tea left in the cup.
How much tea was in the cup before Elsie drank any? [2]

Examiner only

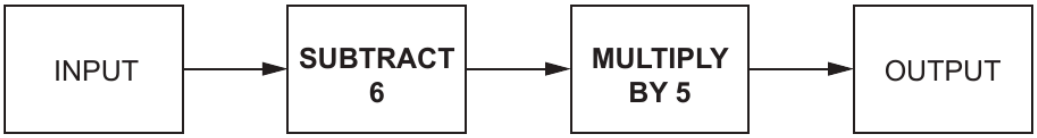
11. (a) A pencil case contains some pens.
One pen is chosen at random.
The probability that the chosen pen is blue is 45%.
What is the probability that the chosen pen is **not blue**? [1]

(b) Dewi throws a fair six-sided dice.
What is the probability that Dewi throws a prime number?
Circle your answer. [1]

$\frac{1}{6}$ $\frac{1}{2}$ $\frac{5}{6}$ $\frac{1}{3}$ $\frac{2}{3}$

12. (a) Solve the equation $8a + 3 \cdot 5 = 27 \cdot 5$. [2]

(b) A number machine is shown below.



Calculate the OUTPUT when the INPUT is 1·5. [1]

Examiner only

13. The table below shows some of the values of $y = x^2 + 4x + 5$ for values of x from –4 to 1.

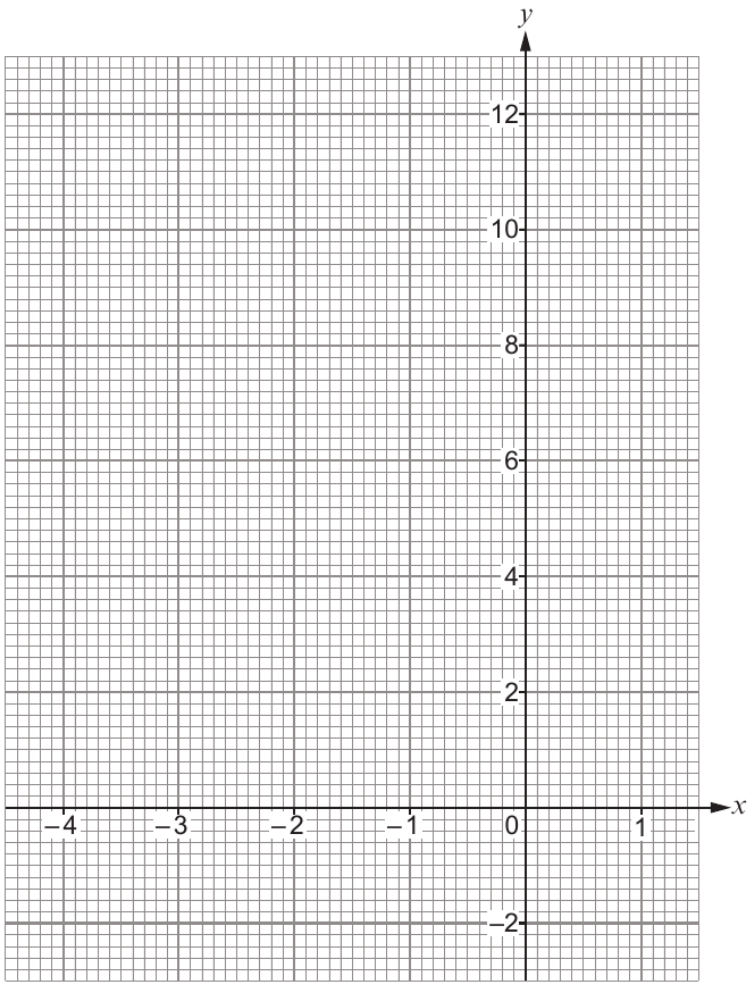
x	–4	–3	–2	–1	0	1
$y = x^2 + 4x + 5$	5	2		2	5	

(a) Complete the table by finding the value of y for $x = -2$ and for $x = 1$. [2]

.....

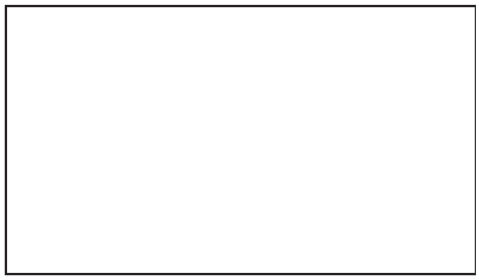
.....

(b) On the graph paper below, draw the graph of $y = x^2 + 4x + 5$ for values of x from –4 to 1. [2]



Examiner only

5. Find the perimeter of the rectangle below.
Give the units of your answer. [3]



Perimeter = ...

6. (a) Write down the next number in this sequence. [1]

71, 79, 87, 95, ...

(b) Write down the next two numbers in this sequence. [2]

40 000, 20 000, 10 000, 5000, ..., ...

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

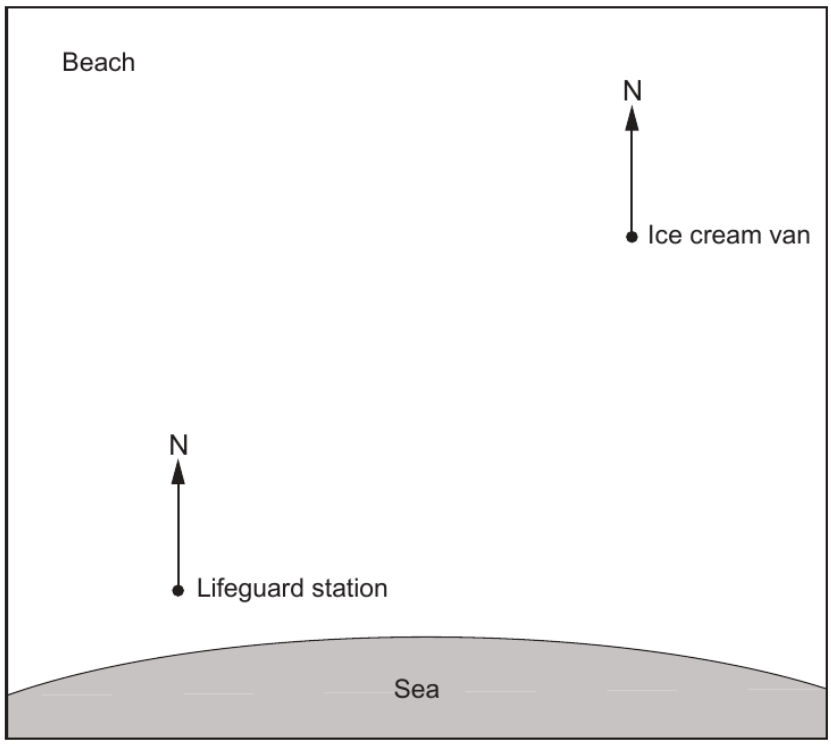
(i) Calculate the mean of these temperatures. [3]

(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.

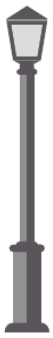
'The bearing of the lifeguard station from Siôn's ice cream van is .....°.' [1]

Examiner only

7. (a)

Remember:

1 kilowatt (kW) = 1000 watts (W)



There are 8 street lights in Ffordd Alwyn.
Each light is fitted with an 80 watt light bulb.

Each of the 8 street lights is usually on from 6 p.m. to 6 a.m.

It costs 32.4p per hour for each **kilowatt** of electricity used.

How much would be saved **per week** if the 8 street lights were only on from 7 p.m. to 5 a.m.?
Give your answer in pounds, correct to the nearest penny.
You must show all your working. [5]

Examiner only

(b) A lamp post is vertical and stands on horizontal ground.
The angle of elevation of the top of the lamp post is 68° when measured from a point 3·3 m from the centre of the base of the lamp post.

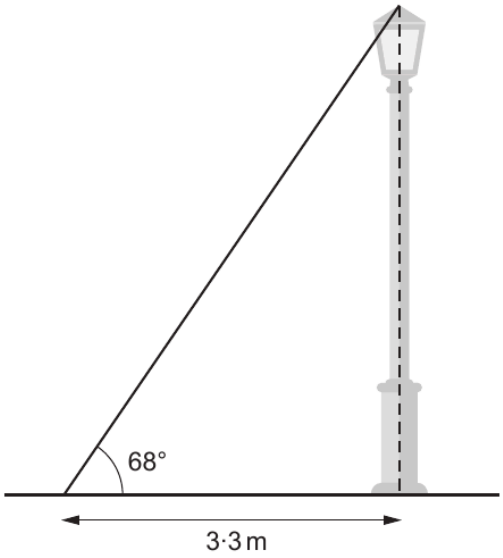
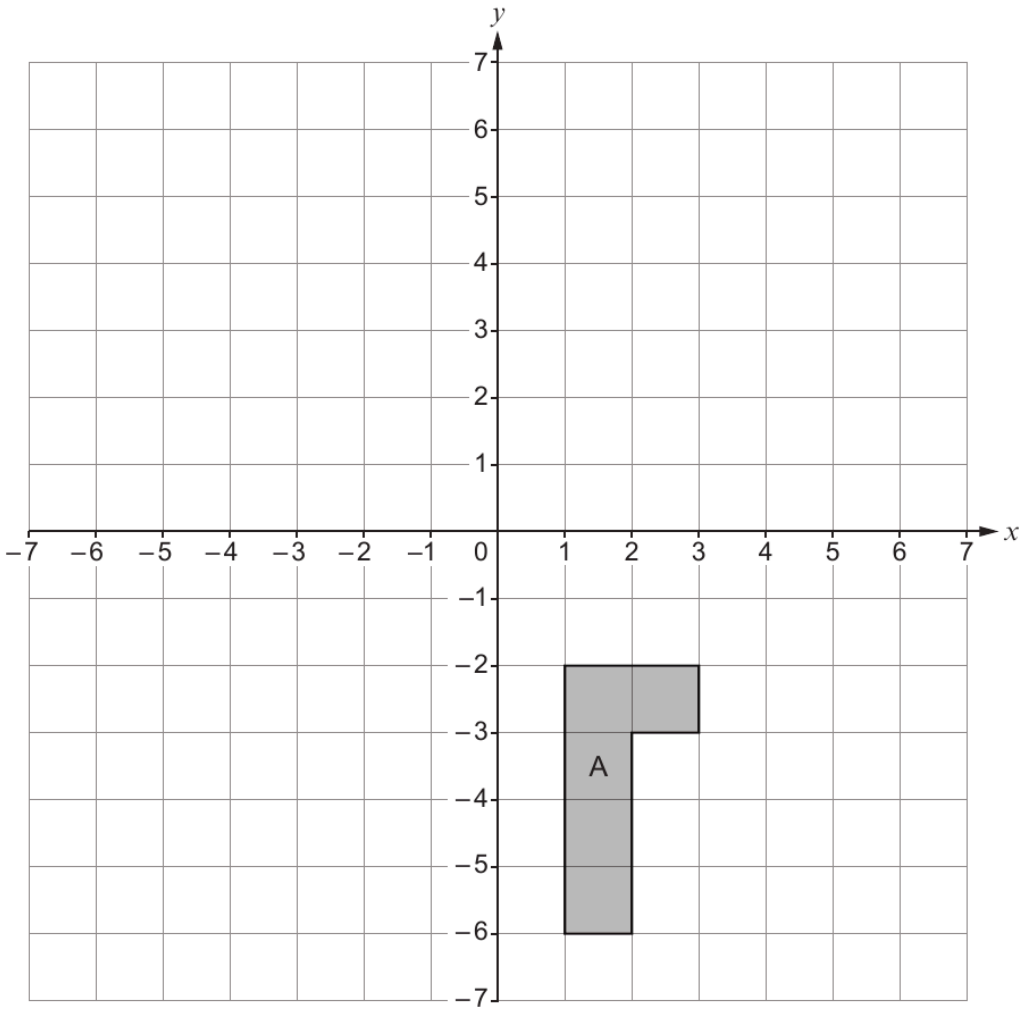


Diagram not drawn to scale

Calculate the height of the lamp post. [3]

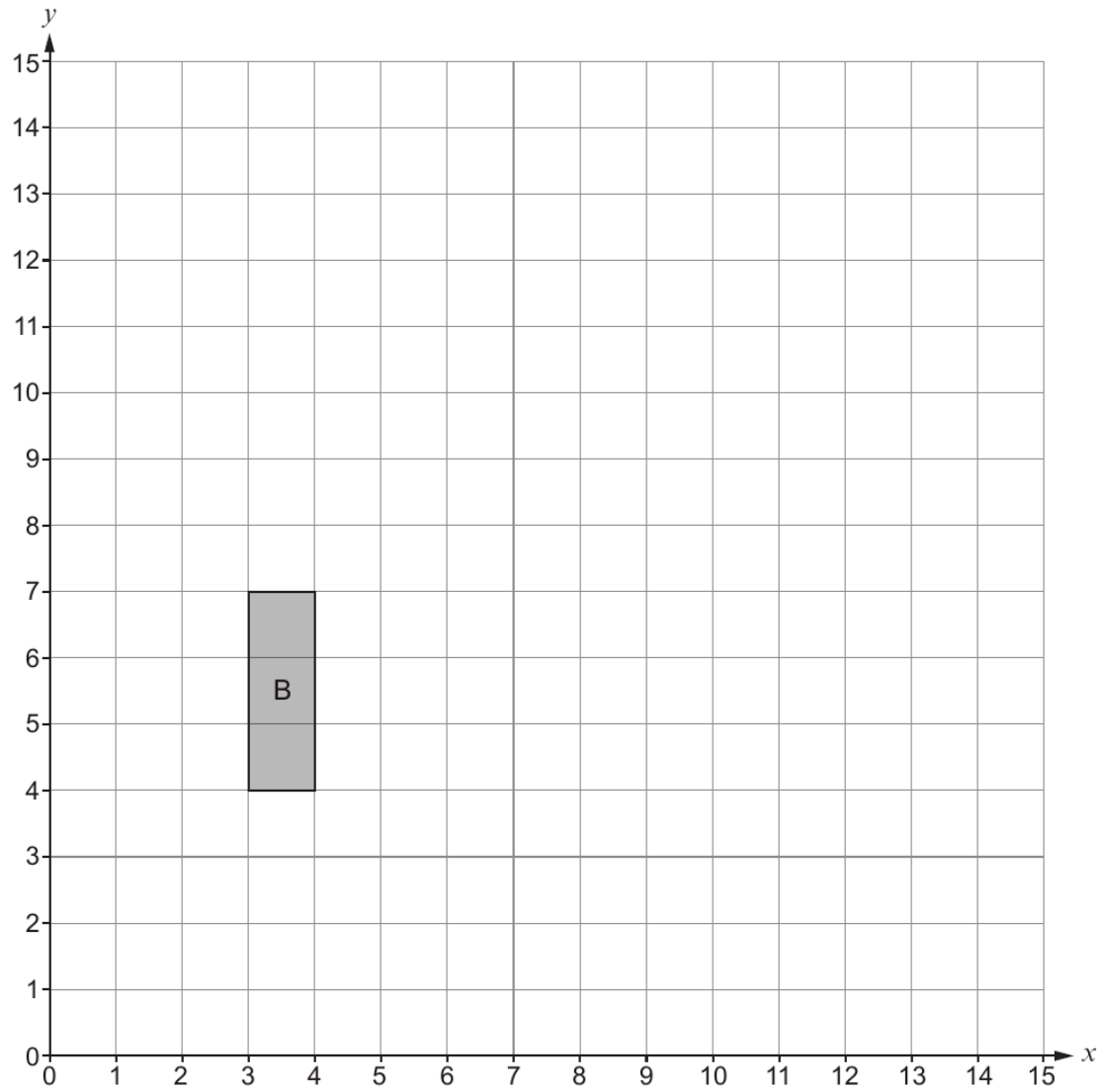
Examiner only

9. (a) Reflect the shape A in the line $x = -1$. [2]



Examiner only

(b) Enlarge the shape B by a scale factor of 2, using (1, 3) as the centre of enlargement. [3]



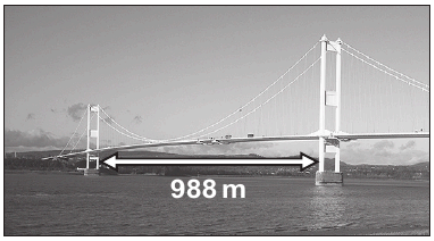
Examiner only

10. The Severn Bridge was built in 1966 to allow vehicles to travel between England and Wales.

The bridge has a width of 23 m and a total length of 1600 m.
The section of the bridge between the two towers is 988 m long.

The tarmac road surface is 0·035 m thick.

The cables from the towers to support the road are made from 18 000 miles of wire.



(a) What fraction of the total length of the bridge is the section between the two towers? Give your fraction in its simplest form. [2]

(b) Calculate the length of the wire used to make the cables in **kilometres**. [2]

Examiner only

(c) The cost of tarmac is £250 per m^3.

Calculate the cost of the volume of the tarmac needed to resurface the total length of the Severn Bridge. [3]

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END OF PAPER

Examiner only

2. Kiera goes to the cinema with her friend.

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

A ticket bought **at the cinema** costs £4.50.

Kiera decides to buy the 2 tickets **online in advance**.

When she buys the tickets online:
- she is given 10% off the cost of each ticket
- she has to pay a total booking fee of £1.40.

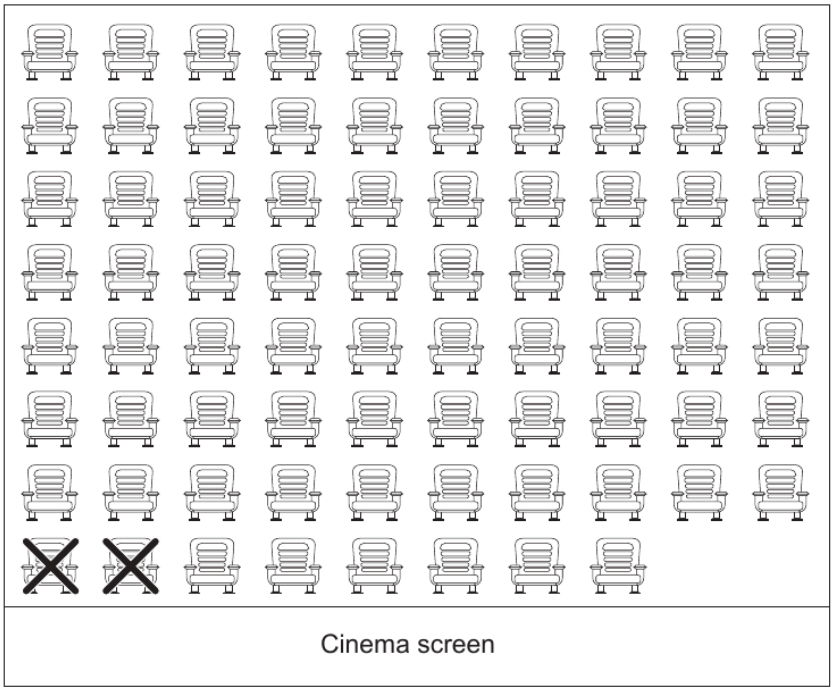
How much does Kiera pay in total for the 2 tickets? [4 + 2 OCW]

3310U101
07

Examiner only

(b) The position of each seat in the cinema is given by a code, for example, seat E5.
Each row of seats is labelled with a letter, A, B, C, D, E, F, G and H.
Each row starts with seat number 1.
Seats A1 and A2 have already been booked.
This is shown by the crosses on the diagram.

Kiera books seats G9 and G10 for herself and her friend.
Draw a cross on each of these 2 seats on the diagram below. [1]



Examiner only

(c) When Kiera arrives at the cinema, she sees the following prices advertised.

Drinks		Snacks	
Small soft drink	£2.99	Regular popcorn	£4.95
Regular soft drink	£3.29	Large popcorn	£5.45
Large soft drink	£3.59	Nachos	£6.00
		Hot dog	£5.60

Combos			
Classic Combo: (regular soft drink & regular popcorn)	£6.99	Deluxe Combo: (large soft drink & large popcorn)	£7.60

Kiera decides to buy the Deluxe Combo.
How much will Kiera save by buying the Deluxe Combo instead of buying a large soft drink and a large popcorn separately? [4]

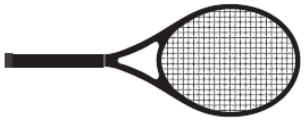
3310U101 09

Examiner only

2. (a) Lewis buys an annual discount card to use in a sports shop.
He pays £9.95 for the discount card.

For one year, Lewis gets 15% off anything he buys in this sports shop when he shows his discount card.

During the year, Lewis buys the following three items.

Full price **before** discount		
 Trainers £55	 Tennis racket £18	 T-shirt £12

How much did Lewis save during the year by using his discount card?
Remember that Lewis had to buy his discount card.
You must show all your working. [4]

(b) Sally buys clothes from the same sports shop.
She does not have a discount card.

In a sale, there is $\frac{1}{6}$ off the full price of a hoodie.
On the last day of the sale, customers could buy the hoodie for half of the sale price.

Sally buys the hoodie on the last day of the sale.
What fraction of the original full price of the hoodie does Sally pay? [2]

Examiner only

4. The diagram below shows a rectangular grass lawn within a rectangular playground.
James lays soft flooring over all the playground except the grass lawn.

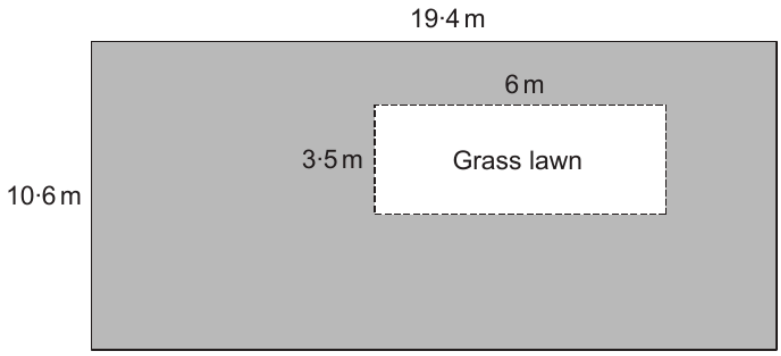


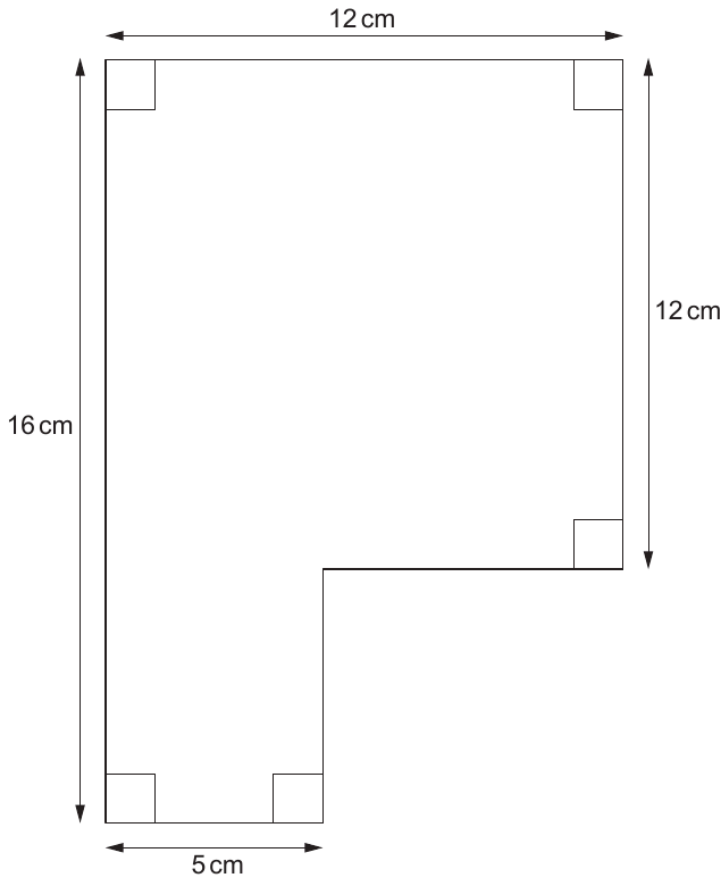
Diagram not drawn to scale

(a) What is the area of playground that James covers with soft flooring?
State the units of your answer. [4]

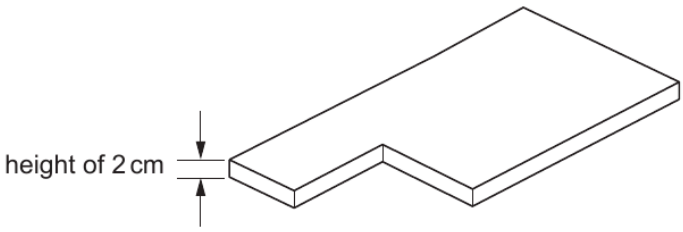
(b) James lays an edging strip around the outer perimeter of the playground.
The edging strip costs £2.95 per metre.
What is the total cost of the edging strip for the outer perimeter of the playground? [4]

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

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



The solid has a height of 2 cm.



Diagrams not drawn to scale

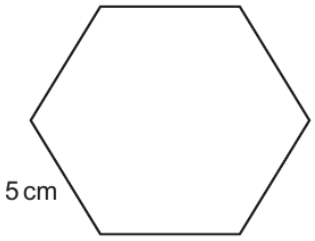
Examiner only

Find the volume of the solid.
You must show all your working. [4 + 2 OCW]

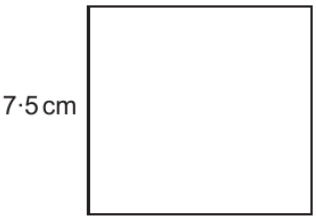
Examiner only

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

Shape A is a regular hexagon.
The length of each side is 5 cm.



Shape B is a square.
The length of each side is 7·5 cm.



Diagrams not drawn to scale

Show that the perimeter of Shape A is equal to the perimeter of Shape B.
You must show all your working. [3 + 2 OCW]

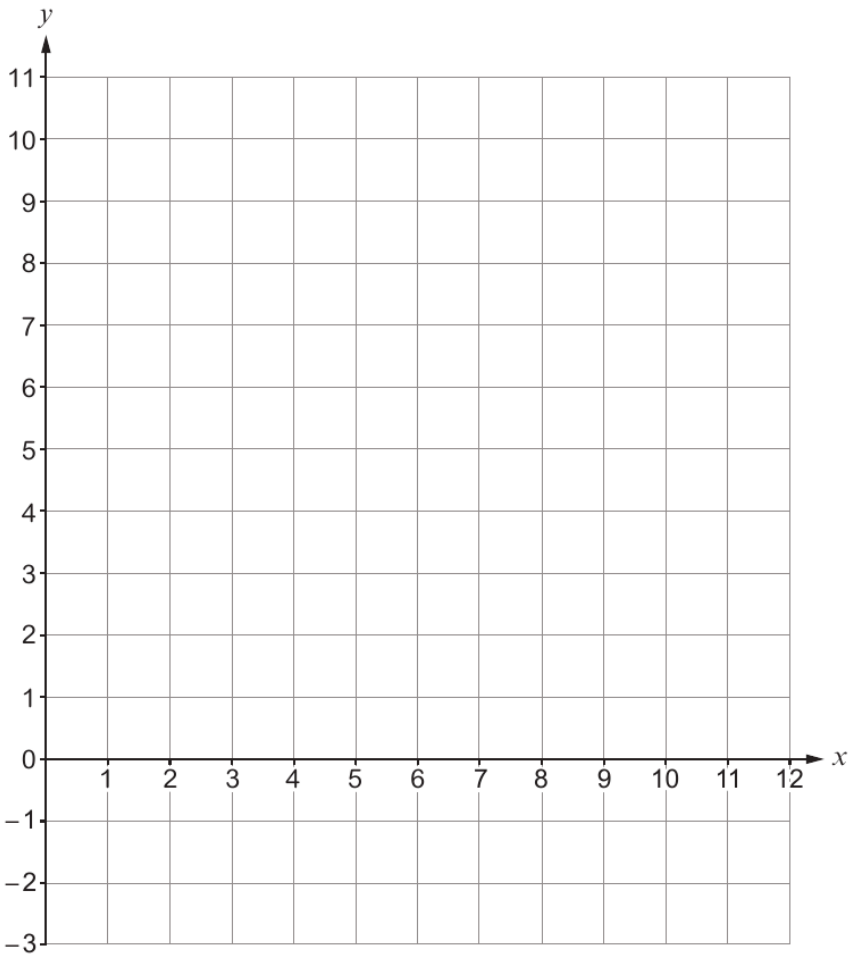
Examiner only

6. Three of the four vertices of a parallelogram have the following coordinates.

(4, 3) (5, –1) (8, 3)

Plot these points on the coordinate grid below.

Then, plot **all three** possible points for the fourth vertex.
Write down the coordinates of these three points. [4]



The **three** possible points for the fourth vertex are

(..... , ...) (..... , ...) (..... , ...)

Examiner only

9. A fire surround is made from concrete.

The fire surround has a uniform cross-section.
The edges of the fire surround are all either horizontal or vertical, as shown in the diagram.

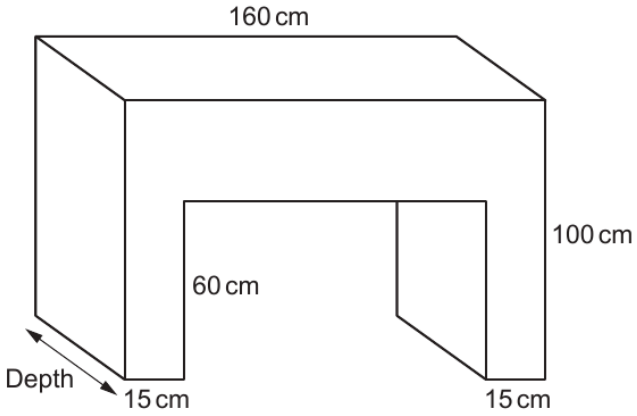


Diagram not drawn to scale

The volume of the concrete in the fire surround is 164 000 cm^3.

Calculate the depth of the fire surround.
Give your answer in centimetres.
You must show all your working. [5]

Depth of fire surround is ..... cm

Examiner only

10. Abby is asked how many quarters there are in 8.

She writes $8 \div 4 = 2$.

Explain why Abby's method is incorrect. [1]

.....

.....

.....

11. (a) Calculate the size of angle x. [2]

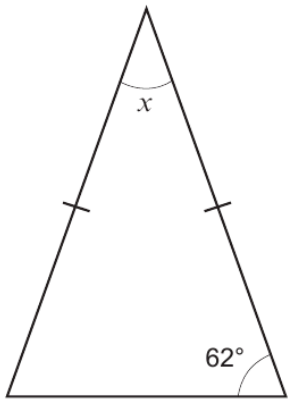


Diagram not drawn to scale

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.....

.....

.....

x = ... °

Examiner only

(b) *PQRS* is a quadrilateral.
QRT is a straight line.
Calculate the size of angle y. [3]

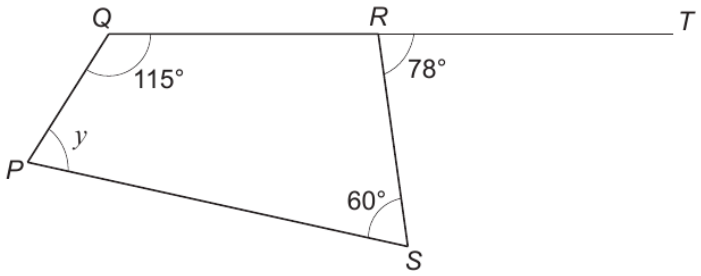


Diagram not drawn to scale

y = ... °

Examiner only

10. A money box contains some 20p coins and some 50p coins.
The value of the 20p coins is £19.20.

The ratio of the number of 20p coins to the number of 50p coins is 8 : 5.

Find the total value of the coins in the money box.
You must show all your working. [5]

Examiner only

10. Alfred has been given the job of varnishing a floor.
A plan of the floor is shown in the diagram below.

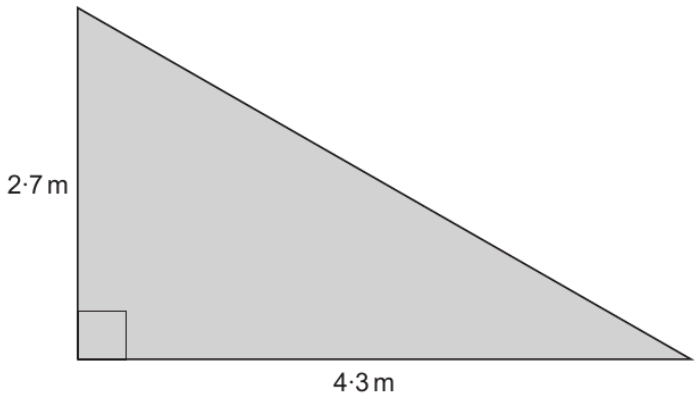
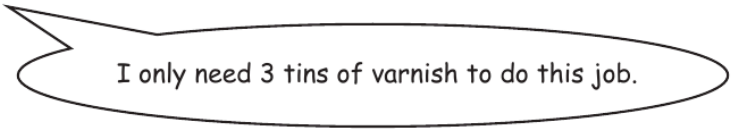


Diagram not drawn to scale

One tin of varnish contains enough to cover an area of 1·6 m^2.

Alfred says,



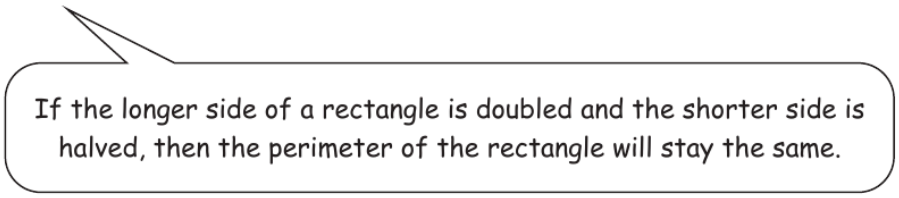
Is Alfred correct?

Yes ☐ No ☐

You must show all your working. [4]

Examiner only

12. Owen says,



Is Owen correct?
Show clearly, using an example, how you decided. [4]