Elite Mathematics
Pearson Edexcel International GCSE

IGCSE LINEAR · 4MA1

4WM1/01R May 2025 Worked Solutions

May 2025 paper rebuilt with the worked solution after each question.

24	2020–2026	Single-paper solutions
paper questions	52 past papers	checked by Dr Eslam



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PAST PAPER

4WM1/01R May 2025

May 2025

24	100	2 h
questions	marks	exam time

Each question is followed by its worked solution and final answer.

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Question 1

2 marks | Rounding, Estimation & Bounds

1 The length of a ship is 142.8 m, correct to 1 decimal place.

(i) Write down the lower bound of the length of the ship.

..... m

(1)

(ii) Write down the upper bound of the length of the ship.

..... m

(1)

(Total for Question 1 is 2 marks)

WORKED SOLUTION

Question 1 · 4WM1/01R May 2025

1 **Calculate value**

The value is correct to 1 decimal place, so the half-unit is 0.05.

$$142.8 - 0.05 = 142.75, \qquad 142.8 + 0.05 = 142.85$$

✓ **FINAL ANSWER**

lower bound 142.75 m, upper bound 142.85 m.

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Question 2

3 marks | Fractions

2 Show that $2\frac{1}{4} \times 1\frac{5}{7} = 3\frac{6}{7}$

(Total for Question 2 is 3 marks)

WORKED SOLUTION

Question 2 · 4WM1/01R May 2025

1 **Evaluate fraction**

$$2\frac{1}{4} = \frac{9}{4}, \qquad 1\frac{5}{7} = \frac{12}{7}$$

$$2\frac{1}{4} \times 1\frac{5}{7} = \frac{9}{4} \times \frac{12}{7}$$

$$= \frac{108}{28} = \frac{27}{7} = 3\frac{6}{7}$$

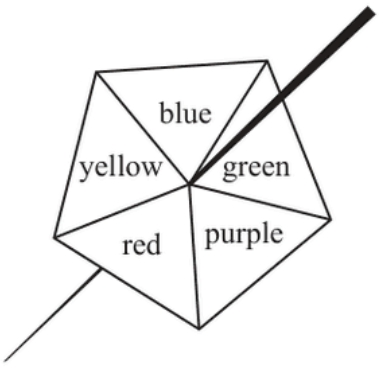
✓ **FINAL ANSWER**

$3\frac{6}{7}$.

Question 3

5 marks | Probability Toolkit

3 Here is a biased 5-sided spinner.
When the spinner is spun, it can land on blue or on green or on purple or on red or on yellow.



The table gives information about the probability of the spinner landing on each colour.

Colour	blue	green	purple	red	yellow
Probability	0.12	0.20	0.38	$4x$	x

Sophie spins the spinner once.

(a) Work out the probability that the spinner lands on blue or on green or on purple.

.....

(1)

Max spins the spinner 350 times.

(b) Work out an estimate for the number of times the spinner lands on red.

.....

(4)

(Total for Question 3 is 5 marks)

1 Let the yellow probability be

Let the yellow probability be x. Then the red probability is $4x$.

$$0.12 + 0.20 + 0.30 + 4x + x = 1$$

$$5x = 0.38$$

$$x = 0.076$$

2 Calculate probability

So

$$P(\text{red}) = 4x = 0.304$$

$$P(\text{blue, green or purple}) = 0.12 + 0.20 + 0.30 = 0.62$$

3 Expected red

Expected red:

$$350 \times 0.304 = 106.4$$

FINAL ANSWER

0.62, and about 106.

Question 4

4 marks | Set Notation & Venn Diagrams

4 $\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{2, 4, 6, 8, 10, 12\}$

$B = \{3, 6, 9, 12\}$

$C = \{1, 3, 5, 7, 9, 11\}$

(a) List the members of the set

(i) $A \cup B$

.....

(ii) B'

.....

(2)

$\mathscr{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$

$A = \{2, 4, 6, 8, 10, 12\}$

$B = \{3, 6, 9, 12\}$

$C = \{1, 3, 5, 7, 9, 11\}$

$\mathscr{E}$	$\cap$	$\cup$	$\varnothing$	$\in$	$\notin$

(b) Write a symbol from the box on each dotted line to make each of the following a true statement.

(i) $A \cap C =$ .....

(ii) 13 ..... $\mathscr{E}$

(2)

(Total for Question 4 is 4 marks)

1 **Calculate value**

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$$

$$A = \{2, 4, 6, 8, 10, 12\}$$

$$B = \{3, 6, 9, 12\}$$

$$C = \{1, 3, 5, 7, 9, 11\}$$

2 **Calculate value**

Therefore

$$A \cup B = \{2, 3, 4, 6, 8, 9, 10, 12\}$$

3 **Calculate value**

and

$$B' = \{1, 2, 4, 5, 7, 8, 10, 11\}$$

4 **No number is both even**

No number is both even and odd, so

$$A \cap C = \emptyset$$

5 **Set**

Also $13 \notin \mathcal{E}$ because 13 is not in the universal set.

✓ **FINAL ANSWER**

(a)(i) $\{2, 3, 4, 6, 8, 9, 10, 12\}$, (a)(ii) $\{1, 2, 4, 5, 7, 8, 10, 11\}$, (b)(i) $\emptyset$, (b)(ii) $13 \notin \mathcal{E}$

Question 5

4 marks | Algebraic Roots & Indices

5 $3^8 \times 3^4 = 3^m$

(a) Find the value of m

$m =$ .....

(1)

$4^{12} \div 4^7 = 4^n$

(b) Find the value of n

$n =$ .....

(1)

$\left(6^2\right)^{10} = 6^p$

(c) Find the value of p

$p =$ .....

(1)

$5^r = 1$

(d) Write down the value of r

$r =$ .....

(1)

(Total for Question 5 is 4 marks)

1 Evaluate fraction

$$3^8 \times 3^4 = 3^{8+4} = 3^{12}$$

$$\frac{4^{12}}{4^7} = 4^{12-7} = 4^5$$

$$(6^2)^{10} = 6^{20}$$

$$5^0 = 1$$

FINAL ANSWER

$m = 12, n = 5, p = 20, r = 0.$

Question 6

3 marks | Forming & Solving Equations

$\left(6^2\right)^{10} = 6^p$

(c) Find the value of p

$p =$ .....

(1)

$5^r = 1$

(d) Write down the value of r

$r =$ .....

(1)

(Total for Question 5 is 4 marks)

6 The diagram shows triangle ABC

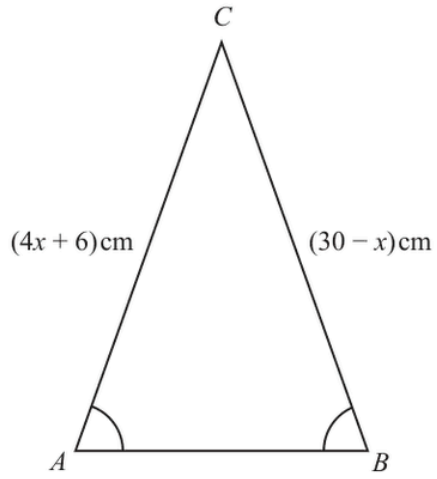


Diagram **NOT** accurately drawn

$CA = (4x + 6)$ cm $\quad CB = (30 - x)$ cm $\quad$ angle CAB = angle CBA

Work out the value of x

$x =$ .....

(Total for Question 6 is 3 marks)

1 **Use trigonometry**

The base angles are equal, so the opposite sides are equal.

$$4x + 6 = 30 - x$$

$$5x = 24$$

$$x = 4.8$$

FINAL ANSWER

$x = 4.8$.

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Question 7

3 marks | Standard & Compound Units

7 Change a speed of 40 metres per second to a speed in kilometres per hour.
Show your working clearly.

..... kilometres per hour

(Total for Question 7 is 3 marks)

WORKED SOLUTION

Question 7 · 4WM1/01R May 2025

1 Evaluate fraction

$$40\ \text{m/s} = 40 \times \frac{3600}{1000}\ \text{km/h}$$

$$= 144\ \text{km/h}$$

FINAL ANSWER

144 kilometres per hour.

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Question 8

4 marks | Right-Angled Triangles - Pythagoras & Trigonometry

8

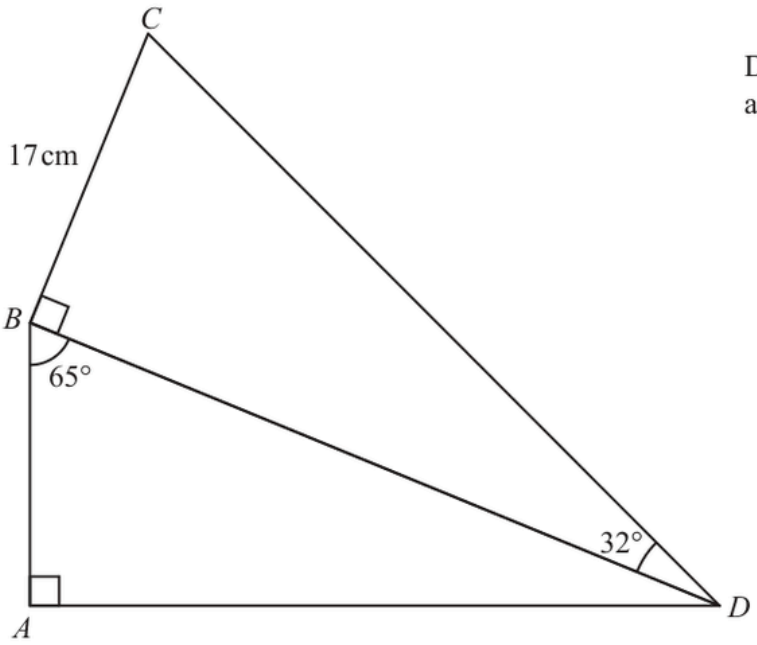


Diagram **NOT** accurately drawn

ABD and *BCD* are right-angled triangles.

angle $ABD = 65°$ angle $CDB = 32°$ $BC = 17$ cm

Work out the length of *AD*
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 8 is 4 marks)

WORKED SOLUTION

Question 8 · 4WM1/01R May 2025

1 **Use trigonometry**

In right triangle BCD,

$$\tan 32° = \frac{17}{BD}$$

$$BD = \frac{17}{\tan 32°}$$

2 **Use trigonometry**

In right triangle ABD,

$$\sin 65^\circ = \frac{AD}{BD}$$

$$AD = \frac{17}{\tan 32^\circ} \sin 65^\circ \approx 24.6567$$

✓ **FINAL ANSWER**

$AD = 24.7$ cm to 3 significant figures.

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Question 9

7 marks | Factorising

9 (a) Simplify $\left(5k^3n^4\right)^2$

.....

(2)

(b) Factorise fully $12m^2y^4 + 18m^3y$

.....

(2)

(c) (i) Factorise $x^2 - 13x + 42$

.....

(2)

(ii) Hence, solve $x^2 - 13x + 42 = 0$

.....

(1)

(Total for Question 9 is 7 marks)

WORKED SOLUTION

Question 9 · 4WM1/01R May 2025

1 **(a)**

(a)

$$(5k^3n^4)^2 = 25k^6n^8$$

2 **(b)**

(b)

$$12m^2y^4 + 18m^3y^3 = 6m^2y^3(2y + 3m)$$

3 **(c)**

(c)

$$x^2 - 13x + 42 = (x - 6)(x - 7)$$

4 **Calculate value**

So

$$x = 6 \quad \text{or} \quad x = 7$$

FINAL ANSWER

$25k^6n^8$, $6m^2y^3(2y+3m)$, $(x-6)(x-7)$, $x=6,7$.

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Question 10

5 marks | Standard & Compound Units

10 The diagram shows a rectangular sheet of metal.

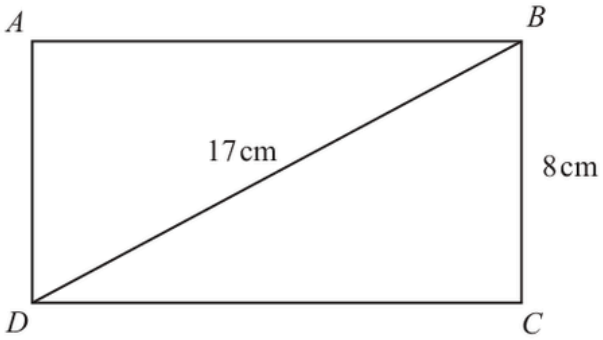


Diagram **NOT** accurately drawn

$BC = 8$ cm $\quad DB = 17$ cm

The sheet of metal lies flat on a table.
The force exerted by the sheet of metal on the table is 150 newtons.

Work out the pressure on the table due to the sheet of metal.
Show your working clearly.

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

..... newtons/cm^2

(Total for Question 10 is 5 marks)

WORKED SOLUTION

Question 10 · 4WM1/01R May 2025

1 **Use Pythagoras to find the**

Use Pythagoras to find the other side of the rectangle.

$$DC = \sqrt{17^2 - 8^2} = 15$$

$$\text{area} = 15 \times 8 = 120 \text{ cm}^2$$

$$\text{pressure} = \frac{150}{120} = 1.25$$

FINAL ANSWER

1.25 newtons/cm^2.

Question 11

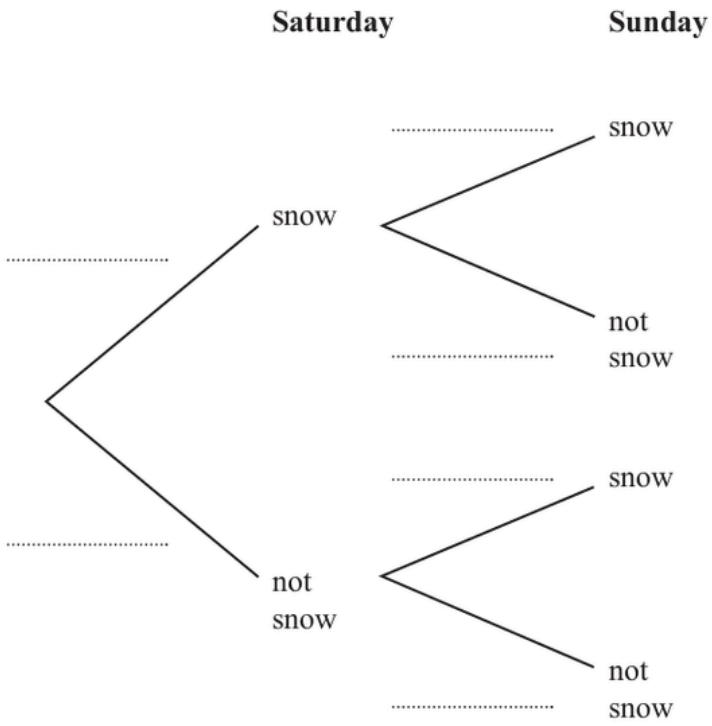
4 marks | Tree Diagrams & Conditional Probability

11 The probability that it will snow on Saturday is 0.2

If it snows on Saturday, the probability that it will snow on Sunday is 0.35

If it does not snow on Saturday, the probability that it will snow on Sunday is 0.4

(a) Use this information to complete the probability tree diagram.



(2)

(b) Work out the probability that it will snow on both Saturday and Sunday.

.....

(2)

(Total for Question 11 is 4 marks)

1 **The missing branch probabilities are**

The missing branch probabilities are complements.

$$P(\text{not snow on Saturday}) = 0.8$$

$$P(\text{not snow on Sunday} \mid \text{snow Saturday}) = 0.65$$

$$P(\text{not snow on Sunday} \mid \text{not snow Saturday}) = 0.6$$

2 **Calculate value**

For snow on both days,

$$0.2 \times 0.35 = 0.07$$

FINAL ANSWER

tree labels $0.2, 0.8, 0.35, 0.65, 0.4, 0.6$; probability 0.07.

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Question 12

6 marks | Linear Equations

12 (a) Solve $\frac{5a+8}{3} - \frac{2a+5}{4} = 23$

Show clear algebraic working.

$a =$ .....

(4)

(b) Express $\left(\frac{\sqrt{y}}{3}\right)^{-1}$ in the form cy^n where c and n are numbers to be found.

.....

(2)

(Total for Question 12 is 6 marks)

WORKED SOLUTION

Question 12 · 4WM1/01R May 2025

1 Solve equation

For part (a),

$$\frac{5a+8}{3} - \frac{2a+5}{4} = 23$$

2 Multiply by

Multiply by 12:

$$4(5a+8) - 3(2a+5) = 276$$

$$20a + 32 - 6a - 15 = 276$$

$$14a + 17 = 276$$

$$14a = 259$$

$$a = \frac{259}{14} = \frac{37}{2}$$

3 **Solve equation**

For part (b),

$$\left(\frac{\sqrt{y}}{3}\right)^{-1} = \frac{3}{\sqrt{y}}$$

$$= 3y^{-1/2}$$

✓ **FINAL ANSWER**

(a) $a = \frac{37}{2}$, (b) $3y^{-1/2}$

Question 13

5 marks | Right-Angled Triangles - Pythagoras & Trigonometry

13 In the diagram, AB represents a vertical tower and CD represents a vertical building.

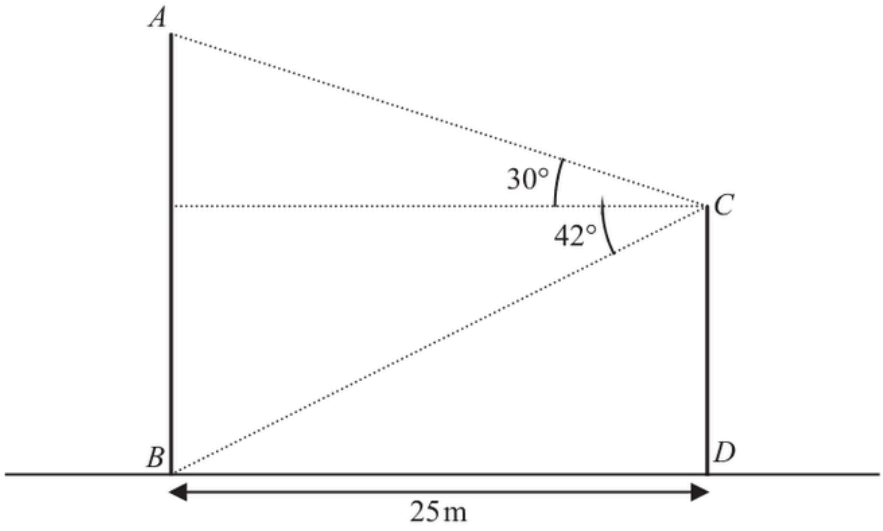


Diagram **NOT** accurately drawn

The bottom of the tower, B, and the bottom of the building, D, are on horizontal ground such that $BD = 25$ m

The angle of elevation of A from C is $30°$
The angle of depression of B from C is $42°$

(a) Work out the height of the tower AB
Give your answer correct to one decimal place.

..... m

(3)

(b) Work out the angle of elevation of A from D
Give your answer correct to one decimal place.

..... °

(2)

(Total for Question 13 is 5 marks)

1 **The height of the building**

The height of the building is

$$CD = 25\tan 42°$$

2 **Use trigonometry**

The extra height from C to A is

$$25\tan 30°$$

3 **Use trigonometry**

So

$$AB = 25\tan 42° + 25\tan 30° \approx 36.9439$$

4 **Use trigonometry**

For the angle of elevation θ from D,

$$\tan\theta = \frac{AB}{25}$$

$$\theta \approx 55.9137°$$

✓ **FINAL ANSWER**

$AB = 36.9$ m, angle of elevation $55.9°$.

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Question 14

2 marks | Recurring Decimals

14 Use algebra to show that the recurring decimal $0.6\dot{1}\dot{2} = \frac{101}{165}$

(Total for Question 14 is 2 marks)

WORKED SOLUTION

Question 14 · 4WM1/01R May 2025

1 Let

Let

$$x = 0.6121212\ldots$$

2 Calculate value

Then

$$10x = 6.121212\ldots$$

3 Calculate value

and

$$1000x = 612.121212\ldots$$

4 Subtract

Subtract:

$$1000x - 10x = 612.121212\ldots - 6.121212\ldots$$

$$990x = 606$$

$$x = \frac{606}{990} = \frac{101}{165}$$

FINAL ANSWER

$0.6121212\ldots = \frac{101}{165}$.

4WM1/01R MAY 2025

Question 15

6 marks | Expanding Brackets

15 (a) Solve $3x^2 + 4x - 18 = 0$
Show your working clearly.
Give your solutions correct to 3 significant figures.

.....

(3)

(b) Expand and simplify $(2x - 3)(x + 4)(x - 1)$

.....

(3)

(Total for Question 15 is 6 marks)

WORKED SOLUTION

Question 15 · 4WM1/01R May 2025

1 **Simplify surd**

(a) For $3x^2 + 4x - 18 = 0$,

$$x = \frac{-4 \pm \sqrt{4^2 - 4(3)(-18)}}{2(3)}$$

$$x \approx 1.87 \quad \text{or} \quad x \approx -3.21$$

2 **(b)**

(b)

$$(2x - 3)(x + 4)(x - 1)$$

$$= (2x^2 + 5x - 12)(x - 1)$$

$$= 2x^3 + 3x^2 - 17x + 12$$

FINAL ANSWER

$x = 1.87$ or $x = -3.21$; $2x^3 + 3x^2 - 17x + 12$.

4WM1/01R MAY 2025

Question 16

4 marks | Surds

16 $\sqrt{96} = 2\sqrt{k}$

(a) Find the value of k

$k =$ .....

(1)

(b) Show that $\dfrac{8}{3-\sqrt{5}}$ can be written in the form $a+\sqrt{b}$ where a and b are integers.

Show each stage of your working.

(3)

(Total for Question 16 is 4 marks)

WORKED SOLUTION

Question 16 · 4WM1/01R May 2025

1 **(a)**

(a)

$$\sqrt{96} = 4\sqrt{6} = 2\sqrt{24}$$

2 **Calculate value**

So $k = 24$.

3 **(b)**

(b)

$$\frac{8}{3-\sqrt{5}} \times \frac{3+\sqrt{5}}{3+\sqrt{5}}$$

$$= \frac{8(3+\sqrt{5})}{9-5} = 2(3+\sqrt{5})$$

$$= 6+2\sqrt{5}$$

FINAL ANSWER

$k = 24, 6+2\sqrt{5}$.

4WM1/01R MAY 2025

Question 17

3 marks | Probability Toolkit

17 Kannika has 9 counters.
There is a number on each counter.



Kannika puts the 9 counters in a bag.
She takes at random a counter from the bag and does not replace the counter.
She then takes at random a second counter from the bag.

Work out the probability that the sum of the numbers on the two counters is less than 5

(Total for Question 17 is 3 marks)

WORKED SOLUTION

Question 17 · 4WM1/01R May 2025

1 The counters are

The counters are

$$1,\ 1,\ 2,\ 3,\ 3,\ 3,\ 5,\ 6,\ 6$$

2 There are

There are

$$\binom{9}{2} = 36$$

3 ways to choose two counters

ways to choose two counters.

4 Calculate probability

For a sum less than 5, the pairs are:

$$(1,1),\quad (1,2),\quad (1,3)$$

5 Counting the repeated counters gives

Counting the repeated counters gives

$$1+2+6=9$$

6 Calculate probability

So

$$P(\text{sum} < 5) = \frac{9}{36} = \frac{1}{4}$$

FINAL ANSWER

$\frac{1}{4}$.

4WM1/01R MAY 2025

Question 18

4 marks | Completing the Square

18 (a) Express $2x^2 - 12x + 23$ in the form $a(x - b)^2 + c$ where a, b and c are integers.
Show clear algebraic working.

.....

(3)

(b) Hence, state the least value of $2x^2 - 12x + 23$

.....

(1)

(Total for Question 18 is 4 marks)

WORKED SOLUTION

Question 18 · 4WM1/01R May 2025

1 **Calculate value**

$$2x^2 - 12x + 23 = 2(x^2 - 6x) + 23$$

$$= 2\left((x - 3)^2 - 9\right) + 23$$

$$= 2(x - 3)^2 + 5$$

2 **The squared part is at**

The squared part is at least zero.

✓ **FINAL ANSWER**

$2(x - 3)^2 + 5$; least value 5.

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Question 19

5 marks | Perimeter & Area

19 The diagram shows a pentagon $ABCDE$

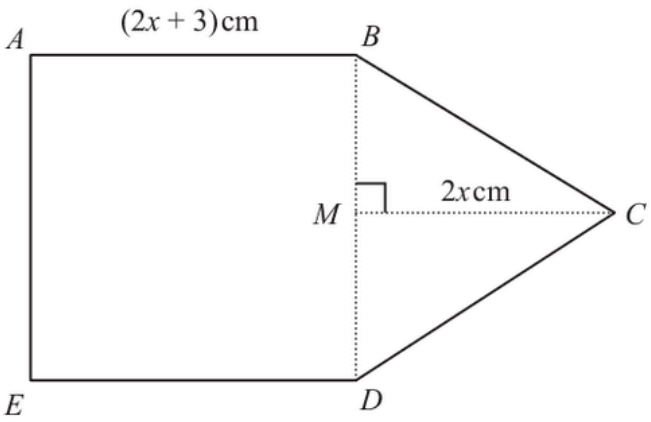


Diagram **NOT** accurately drawn

$ABCDE$ is made from a square $ABDE$ and a triangle BCD
M is the midpoint of BD

$AB = (2x + 3)$ cm $MC = 2x$ cm angle $BMC = 90°$

The area of pentagon $ABCDE$ is 84 cm^2

Work out the area of square $ABDE$
Show clear algebraic working.

..... cm^2

(Total for Question 19 is 5 marks)

WORKED SOLUTION

Question 19 · 4WM1/01R May 2025

1 **Square area**

Square area:

$$(2x + 3)^2$$

2 **Triangle area**

Triangle area:

$$\frac{1}{2}(2x + 3)(2x)$$

3 Evaluate fraction

So

$$(2x+3)^2+\frac{1}{2}(2x+3)(2x)=84$$

$$6x^2+15x-75=0$$

$$2x^2+5x-25=0$$

$$(2x-5)(x+5)=0$$

4 Calculate value

The positive solution is $x=2.5$, so

$$(2x+3)^2=8^2=64$$

FINAL ANSWER

$64\ \text{cm}^2$.

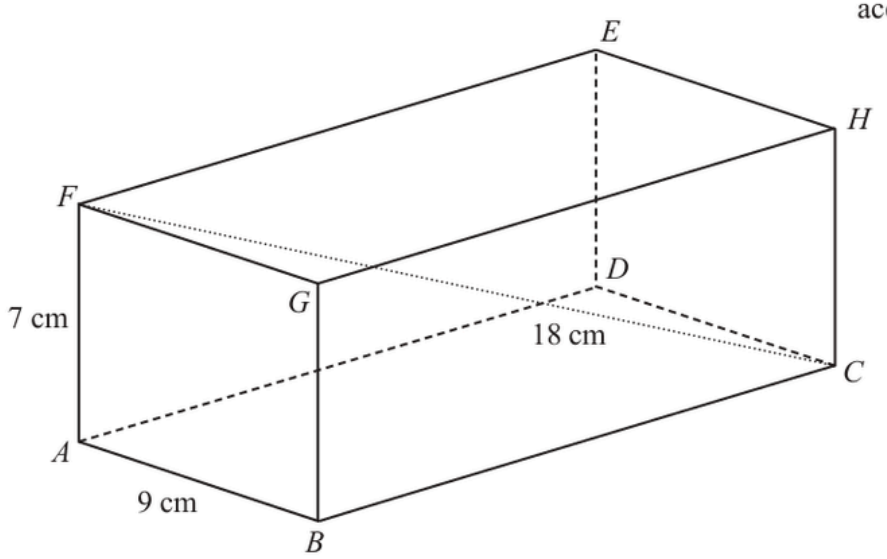
4WM1/01R MAY 2025

Question 20

3 marks | 3D Pythagoras & Trigonometry

20 The diagram shows cuboid $ABCDEFGH$

Diagram **NOT** accurately drawn



$AB = 9\,\text{cm}$ $AF = 7\,\text{cm}$ $FC = 18\,\text{cm}$

Calculate the length of BC
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 20 is 3 marks)

WORKED SOLUTION

Question 20 · 4WM1/01R May 2025

1 **Use trigonometry**

In the rectangle $ABCF$, use Pythagoras with the diagonal FC:

$$AC^2 = FC^2 - AF^2$$

$$AC^2 = 18^2 - 7^2 = 324 - 49 = 275$$

2 **Use trigonometry**

Now use Pythagoras in triangle ABC:

$$BC^2 = AC^2 - AB^2$$

$$BC^2 = 275 - 9^2 = 275 - 81 = 194$$

$$BC = \sqrt{194} = 13.928\ldots$$

✓ **FINAL ANSWER**

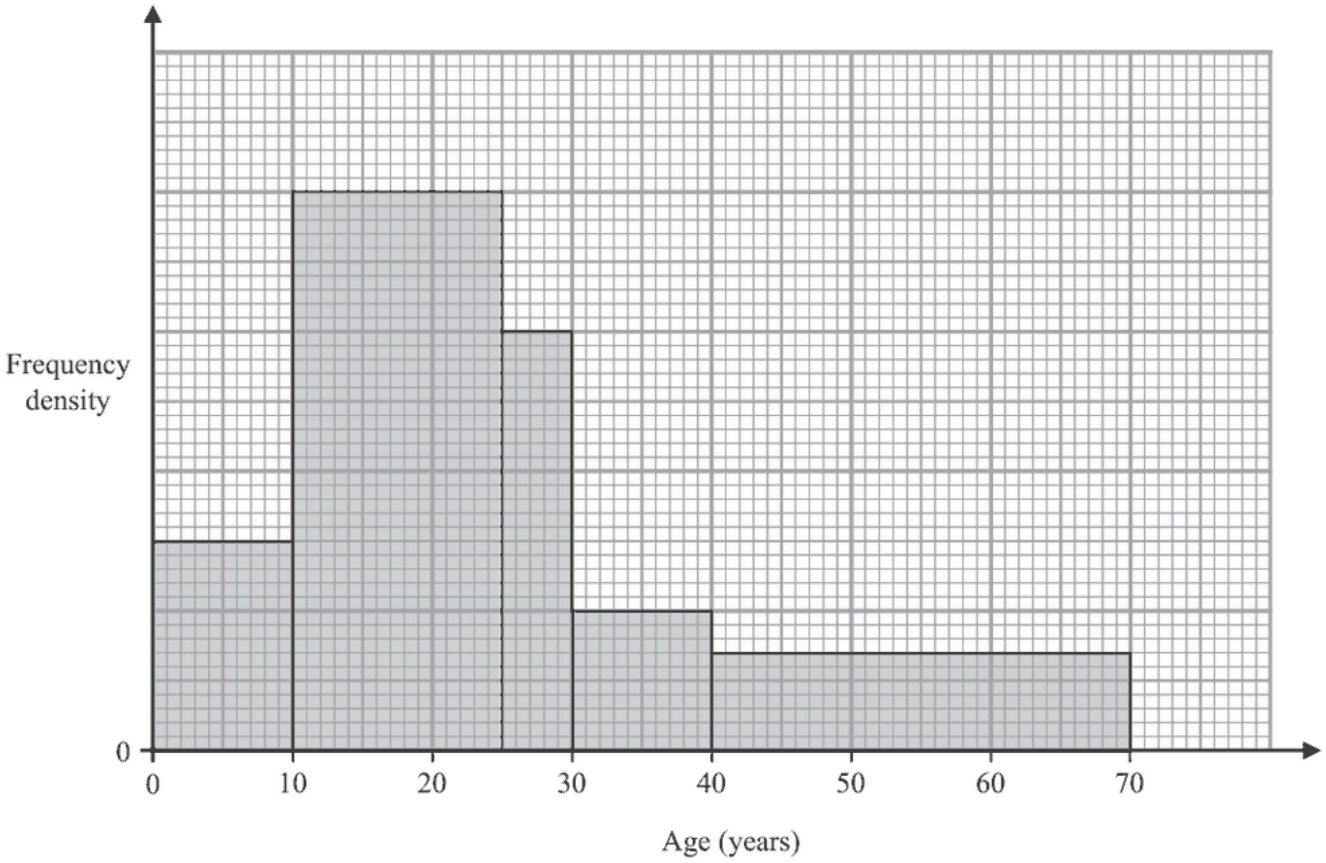
$\mathbf{13.9\ cm}$ to 3 significant figures

4WM1/01R MAY 2025

Question 21

3 marks | Histograms

21 The histogram shows information about the ages of the members of a chess club.



There are 60 members aged between 10 and 25
There are no members older than 70

Work out an estimate for the number of members who are over 35 years of age.

(Total for Question 21 is 3 marks)

WORKED SOLUTION

Question 21 · 4WM1/01R May 2025

1 **The interval to has width**

The interval 10 to 25 has width 15 and frequency 60, so its frequency density is

$$\frac{60}{15} = 4$$

2 **Use histogram**

Using that scale from the histogram:

$$35 \text{ to } 40 : 5 \times 1 = 5$$

$$40 \text{ to } 70 : 30 \times 0.75 = 22.5$$

$$5 + 22.5 = 27.5$$

✓ **FINAL ANSWER**

about 28 members.

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Question 22

6 marks | Circles, Arcs & Sectors

22

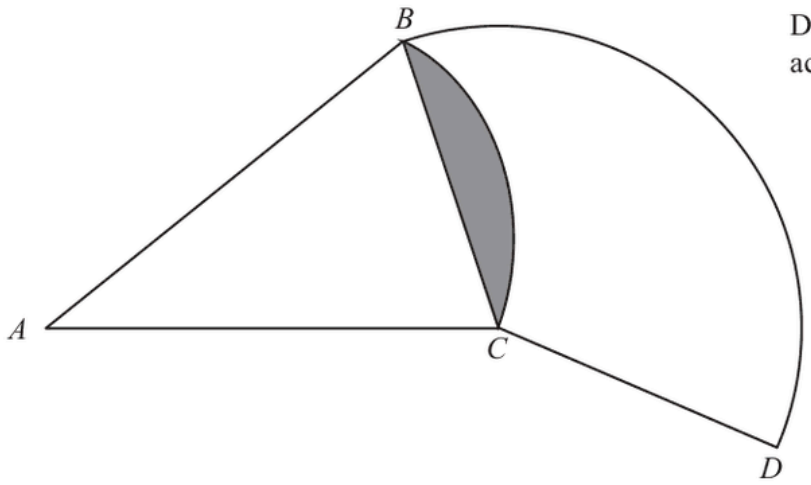


Diagram **NOT** accurately drawn

BAC is a sector of a circle, centre *A*

BCD is a sector of a circle, centre *C*

Angle *BAC* = 40°
Angle *BCD* = 130°
Area of shaded segment = 28 cm^2

Find the length of the arc *BD*
Give your answer correct to 3 significant figures.

..... cm

(Total for Question 22 is 6 marks)

WORKED SOLUTION

Question 22 · 4WM1/01R May 2025

1 Let the radius of sector

Let the radius of sector BAC be R.

2 The shaded segment is the

The shaded segment is the segment cut off by chord BC in the sector with centre A.

3 **Its area is**

Its area is

$$\text{sector area} - \text{triangle area}$$

$$28 = \frac{40}{360}\pi R^2 - \frac{1}{2}R^2 \sin 40°$$

$$28 = R^2\left(\frac{\pi}{9} - \frac{1}{2}\sin 40°\right)$$

$$R = 31.8096\ldots$$

---

4 **Use trigonometry**

Now find the chord BC:

$$BC = 2R\sin 20°$$

$$BC = 2(31.8096\ldots)\sin 20° = 21.7591\ldots$$

---

5 **Calculate value**

In sector BCD, the centre is C, so the radius is

$$CB = CD = 21.7591\ldots$$

---

6 **Use trigonometry**

The arc BD has angle $130°$, so

$$\text{arc } BD = \frac{130}{360} \times 2\pi(21.7591\ldots)$$

$$= 49.3697\ldots$$

✓ **FINAL ANSWER**

$\boxed{49.4 \text{ cm}}$

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Question 23

5 marks | Linear Graphs

23 A circle C has centre $(3q, 4q)$ where q is an integer.

The straight line with equation $y = -\frac{5}{4}x + \frac{21}{4}$ is the tangent to C at the point $(p, p+3)$ where p is an integer.

Work out the radius of C
Give your answer in the form $\sqrt{a}$ where a is an integer.
Show your working clearly.

(Total for Question 23 is 5 marks)

WORKED SOLUTION

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1 The tangent point lies on

The tangent point lies on the tangent line, so

$$p + 3 = -\frac{5}{4}p + \frac{21}{4}$$

$$p = 1$$

2 Find the gradient

The tangent gradient is $-\frac{5}{4}$, so the radius gradient is $\frac{4}{5}$.

3 Use trigonometry

Using centre $(3q, 4q)$ and tangent point $(1, 4)$,

$$\frac{4 - 4q}{1 - 3q} = \frac{4}{5}$$

$$q = 2$$

4 **Simplify surd**

So the centre is $(6, 8)$. Therefore

$$r = \sqrt{(6-1)^2 + (8-4)^2} = \sqrt{41}$$

✓ **FINAL ANSWER**

$\sqrt{41}$.

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Question 24

4 marks | Algebraic Fractions

24 Write $(2x-1)+\dfrac{2x^2-5x-12}{x^2-16}\times\dfrac{x^2+4x}{6x^2+11x+3}$ as a single fraction in its simplest form.

Show clear algebraic working.

(Total for Question 24 is 4 marks)

WORKED SOLUTION

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1 Factor the fractional part first

Factor the fractional part first:

$$\frac{2x^2-5x-12}{x^2-16}\times\frac{x^2+4x}{6x^2+11x+3}$$

$$=\frac{(2x+3)(x-4)}{(x-4)(x+4)}\times\frac{x(x+4)}{(3x+1)(2x+3)}$$

$$=\frac{x}{3x+1}$$

2 Evaluate fraction

So

$$(2x-1)+\frac{x}{3x+1}=\frac{(2x-1)(3x+1)+x}{3x+1}$$

$$=\frac{6x^2-1}{3x+1}$$

FINAL ANSWER

$$\frac{6x^2-1}{3x+1}.$$