

Edexcel GCSE

Mathematics (Linear) – 1MA0

SURFACE AREA

Materials required for examination

Ruler graduated in centimetres and millimetres, protractor, compasses, pen, HB pencil, eraser.
Tracing paper may be used.

Items included with question papers

Nil



Instructions

Use black ink or ball-point pen.

Fill in the boxes at the top of this page with your name, centre number and candidate number.

Answer all questions.

Answer the questions in the spaces provided – there may be more space than you need.

Calculators may be used.

Information

The marks for each question are shown in brackets – use this as a guide as to how much time to spend on **each** question.

Questions labelled with an **asterisk** (*) are ones where the quality of your written communication will be assessed – you should take particular care on these questions with your spelling, punctuation and grammar, as well as the clarity of expression.

Advice

Read each question carefully before you start to answer it.

Keep an eye on the time.

Try to answer every question.

Check your answers if you have time at the end.

1. The diagram shows a cuboid of dimensions $10\text{cm} \times 8\text{cm} \times 5\text{cm}$.

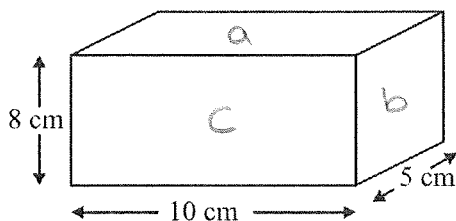


Diagram **NOT** accurately drawn

Work out the total surface area of the cuboid.

State the units with your answer.

3 pairs of sides

① Top and Bottom $\rightarrow 10 \times 5 = 50\text{cm}^2$ $\xrightarrow{2 \text{ of them}}$ 100cm^2

② Left and Right $\rightarrow 8 \times 5 = 40\text{cm}^2$ $\rightarrow 80\text{cm}^2$

③ Front and Back $\rightarrow 10 \times 8 = 80\text{cm}^2$ $\rightarrow 160\text{cm}^2$

TOTAL $\underline{340\text{cm}^2}$

$\dots\dots\dots 340\text{cm}^2$

mark for the units

(Total 4 marks)

2. The diagram shows a solid cuboid which is 5 cm by 4 cm by 3 cm.

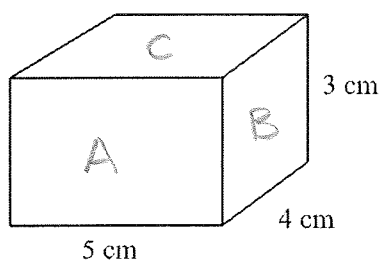


Diagram **NOT** accurately drawn

What is the total surface area of this cuboid?

State the units with your answer.

$A = 5 \times 3 = 15$ $\xrightarrow{2 \text{ of those}}$ 30

$B = 3 \times 4 = 12$ $\rightarrow 24$

$C = 4 \times 5 = 20$ $\rightarrow 40$

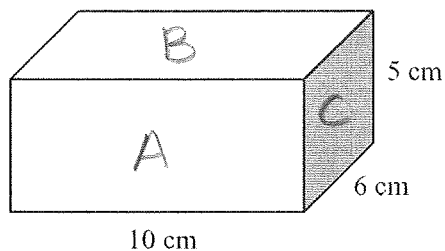
TOTAL 94

$\dots\dots\dots 94\text{cm}^2$

mark for units if not given.

(Total 4 marks)

3. Here is a cuboid.



$$\begin{array}{rcl}
 A = 10 \times 5 = 50 & \rightarrow & 100 \\
 B = 10 \times 6 = 60 & \rightarrow & 120 \\
 C = 5 \times 6 = 30 & \rightarrow & 60 \\
 \hline
 & & 280
 \end{array}$$

2 of each

Diagram NOT accurately drawn

What is the total surface area of the cuboid?

State the units with your answer.

$$\begin{array}{l}
 \text{.....} 280 \text{ cm}^2 \text{.....} \\
 \text{(Total 4 marks)}
 \end{array}$$

4.

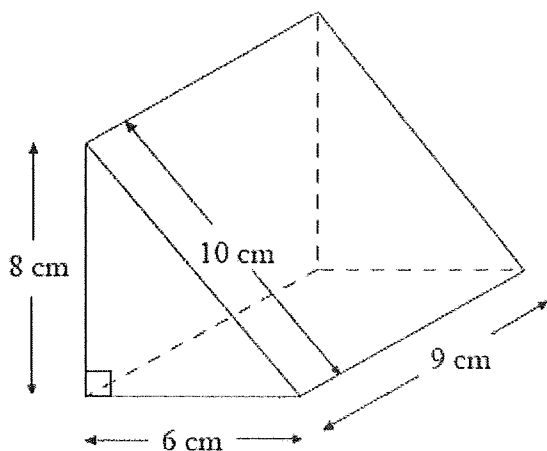


Diagram NOT accurately drawn

$$\begin{array}{l}
 2 \times \text{triangle} = \frac{1}{2} \times 8 \times 6 = 24 \rightarrow 48 \\
 \text{slope side} = 10 \times 9 = 90 \\
 \text{base} = 6 \times 9 = 54 \\
 \text{side} = 8 \times 9 = 72
 \end{array}$$

Work out the surface area of the triangular prism.
State the units with your answer.

$$\begin{array}{l}
 \text{TOTAL} = 48 + 90 + 54 + 72 \\
 = 264
 \end{array}$$

$$\begin{array}{l}
 \text{.....} 264 \text{ cm}^2 \text{.....} \\
 \text{(Total 4 marks)}
 \end{array}$$

5.

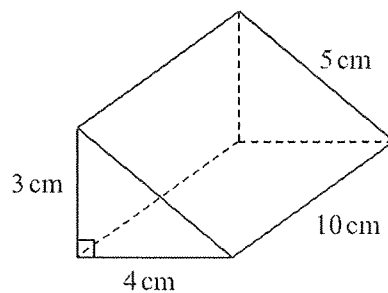


Diagram **NOT** accurately drawn

What is the total surface area of the triangular prism?

Work out the surface area of the triangular prism.

State the units with your answer.

2 triangles: $\frac{1}{2} \times 3 \times 4 = 6$ each $\rightarrow 12$ total

sloped side: $10 \times 5 = 50$

base: $10 \times 4 = 40$

side: $3 \times 10 = 30$

$$\begin{aligned}\text{TOTAL} &= 12 + 50 + 40 + 30 \\ &= 132 \text{ cm}^2\end{aligned}$$

.....132 cm².....

(Total 4 marks)

6.

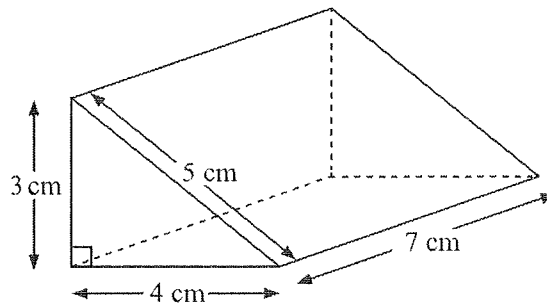


Diagram **NOT** accurately drawn

Work out the total surface area of the triangular prism.

$$\text{Front triangle} \rightarrow \frac{1}{2} \times 3 \times 4 = 6$$

$$\text{Back triangle} \rightarrow \frac{1}{2} \times 3 \times 4 = 6$$

$$\text{Base} \rightarrow 4 \times 7 = 28$$

$$\text{Sloping side} \rightarrow 5 \times 7 = 35$$

$$\text{Other side} \rightarrow 3 \times 7 = 21$$

$$\text{TOTAL } 96$$

.....96..... cm^2
(Total 3 marks)

7.

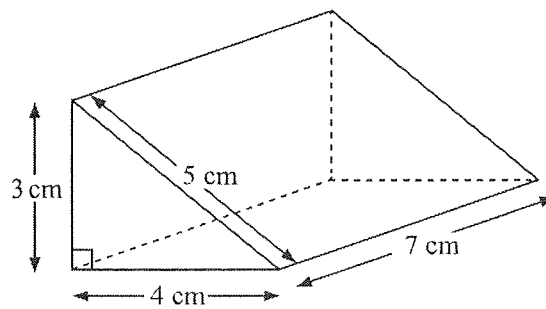


Diagram **NOT** accurately drawn

Work out the total surface area of the triangular prism.
Give the units with your answer.

$$\text{Front triangle : } \frac{1}{2} \times 3 \times 4 = 6$$

$$\text{Back triangle : } \frac{1}{2} \times 3 \times 4 = 6$$

$$\text{Base : } 4 \times 7 = 28$$

$$\text{Sloping side : } 5 \times 7 = 35$$

$$\text{Other side : } 3 \times 7 = 21$$

$$\text{TOTAL } 96$$

$$96 \text{ cm}^2$$

(Total 4 marks)

8.

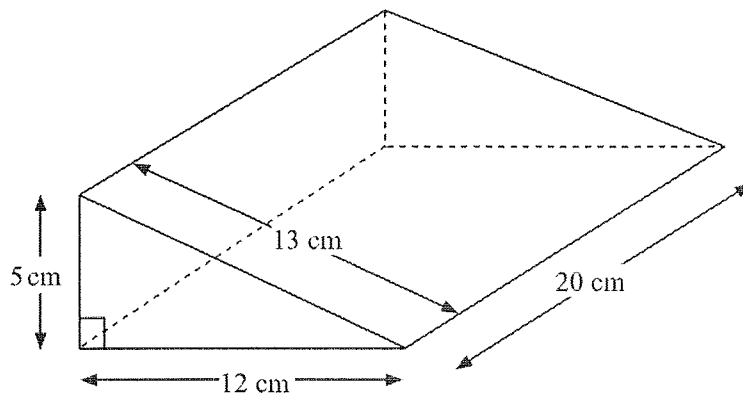


Diagram **NOT** accurately drawn

The diagram shows a right-angled triangular prism.

Work out the surface area of the triangular prism.

$$\text{Front triangle} : \frac{1}{2} \times 5 \times 12 = 30$$

$$\text{Back triangle} : \frac{1}{2} \times 5 \times 12 = 30$$

$$\text{Base} : 12 \times 20 = 240$$

$$\text{Sloping side} : 13 \times 20 = 260$$

$$\text{Other side} : 5 \times 20 = 100$$

$$660$$

$$\dots\dots\dots 660 \dots\dots\dots \text{cm}^2$$

(Total 3 marks)

9.

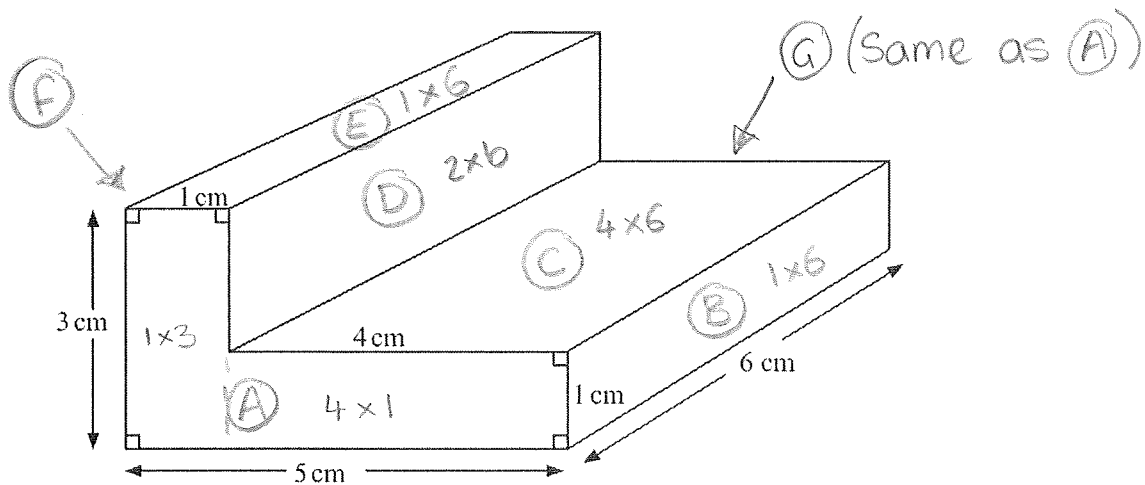


Diagram NOT
accurately drawn

Work out the total surface area of the L-shaped prism.
State the units with your answer.

① Label the sides

(A) → Compound shape so split into 2 and work out areas. Add together to make total.

(B) → (E) All easy rectangles

(F) → The one you can't see (3x6)

(G) → Same as (A)

80 cm²

(Total 4 marks)

$$(A) = 7$$

$$(B) = 6$$

$$(C) = 24$$

$$(D) = 12$$

$$(E) = 6$$

$$(F) = 18$$

$$(G) = 7$$

$$\begin{aligned} \text{TOTAL} &= 7 + 6 + 24 + 12 + 6 + 18 + 7 \\ &= 80 \text{ cm}^2 \end{aligned}$$