

MATHEMATICAL SKILLS

AREA OF A SQUARE AND ASSOCIATED EXAMINATION QUESTIONS

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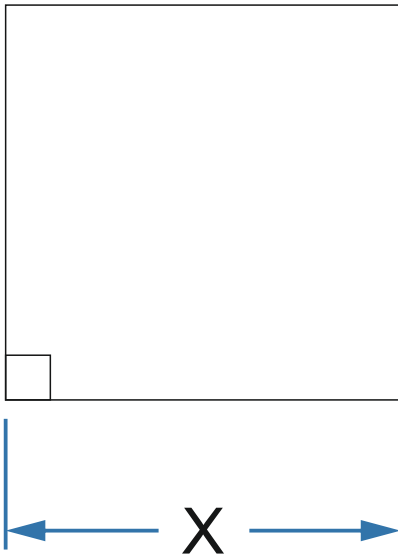
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CALCULATING THE AREA OF A SQUARE

Definition: A square has four sides, with each being equal in length. Each of the four internal angles are right angles, 90 degrees.



FORMULA

$$\text{AREA} = X^2$$

OR $X = X$ multiplied by X

X IS THE LENGTH OF ONE SIDE

REMEMBER, WITH A SQUARE,
EACH SIDE IS THE SAME LENGTH

SAMPLE QUESTIONS

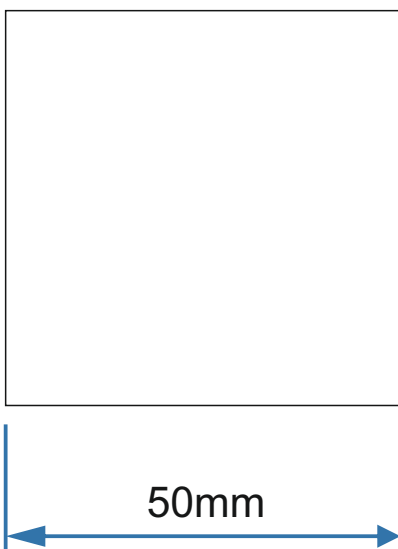


Calculate the area of the square shown opposite.
The length of one side is 100mm

$$\text{AREA} = X^2$$

$$\text{AREA} = 100\text{mm} \times 100\text{mm}$$

$$\text{AREA} = 10000\text{mm}^2$$



Calculate the area of the square shown opposite.
The length of one side is 50mm

$$\text{AREA} = X^2$$

$$\text{AREA} = 50\text{mm} \times 50\text{mm}$$

$$\text{AREA} = 2500\text{mm}^2$$

SAMPLE QUESTIONS

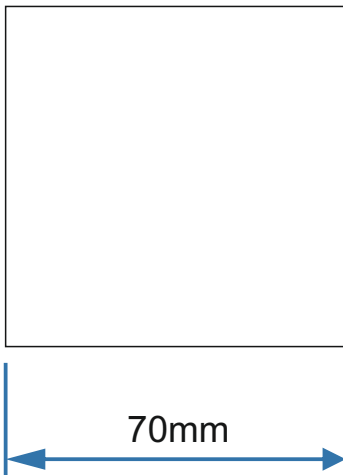


Calculate the area of the square shown opposite.
The length of one side is 90mm

$$\text{AREA} = X^2$$

$$\text{AREA} = 90\text{mm} \times 90\text{mm}$$

$$\text{AREA} = 8100\text{mm}^2$$



Calculate the area of the square shown opposite.
The length of one side is 70mm

$$\text{AREA} = X^2$$

$$\text{AREA} = 70\text{mm} \times 70\text{mm}$$

$$\text{AREA} = 4900\text{mm}^2$$

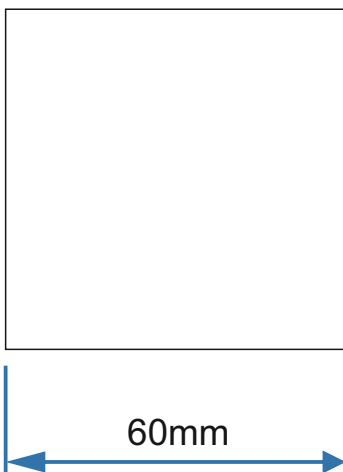


Calculate the area of the square shown opposite.
The length of one side is 80mm

$$\text{AREA} = X^2$$

$$\text{AREA} = 80\text{mm} \times 80\text{mm}$$

$$\text{AREA} = 6400\text{mm}^2$$



Calculate the area of the square shown opposite.
The length of one side is 60mm

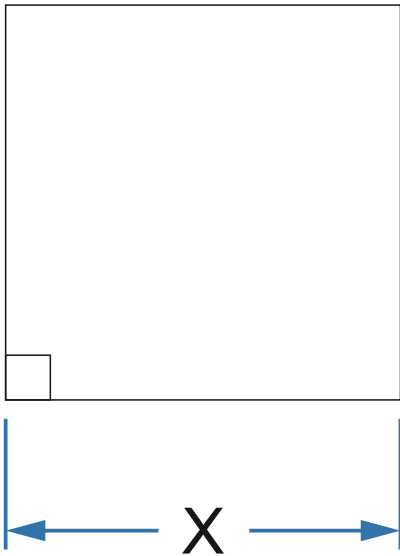
$$\text{AREA} = X^2$$

$$\text{AREA} = 60\text{mm} \times 60\text{mm}$$

$$\text{AREA} = 3600\text{mm}^2$$

CALCULATING THE AREA OF A SQUARE

Definition: A square has four sides, with each being equal in length. Each of the four internal angles are right angles, 90 degrees.



FORMULA

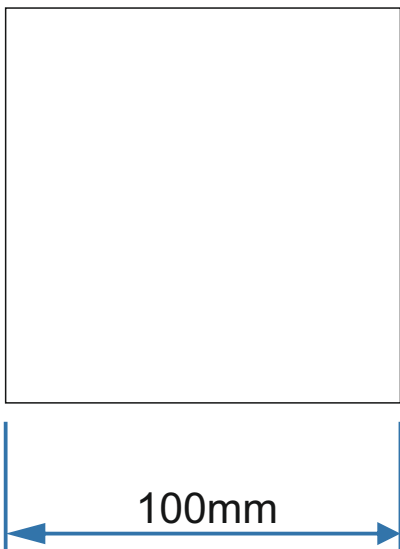
$$\text{AREA} = X^2$$

OR $X = X$ multiplied by X

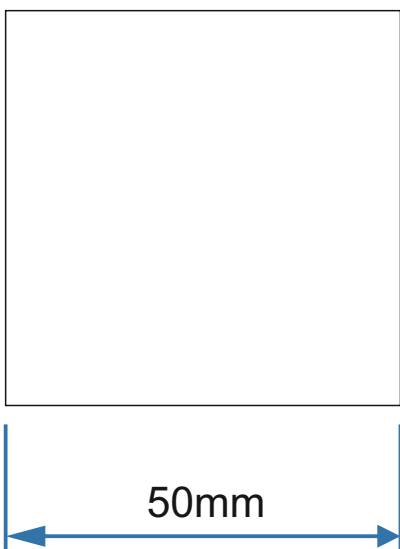
X IS THE LENGTH OF ONE SIDE

REMEMBER, WITH A SQUARE,
EACH SIDE IS THE SAME LENGTH

SAMPLE QUESTIONS

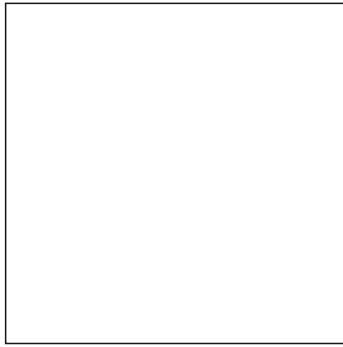


Calculate the area of the square shown opposite.
The length of one side is 100mm

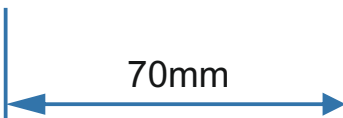
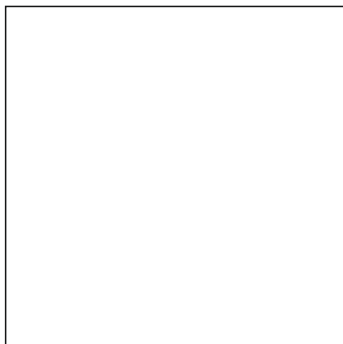


Calculate the area of the square shown opposite.
The length of one side is 50mm

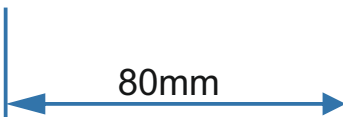
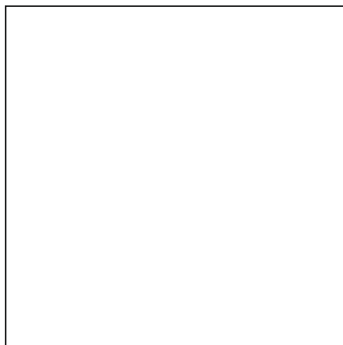
SAMPLE QUESTIONS



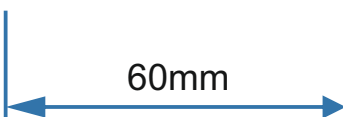
Calculate the area of the square shown opposite.
The length of one side is 90mm



Calculate the area of the square shown opposite.
The length of one side is 70mm



Calculate the area of the square shown opposite.
The length of one side is 80mm

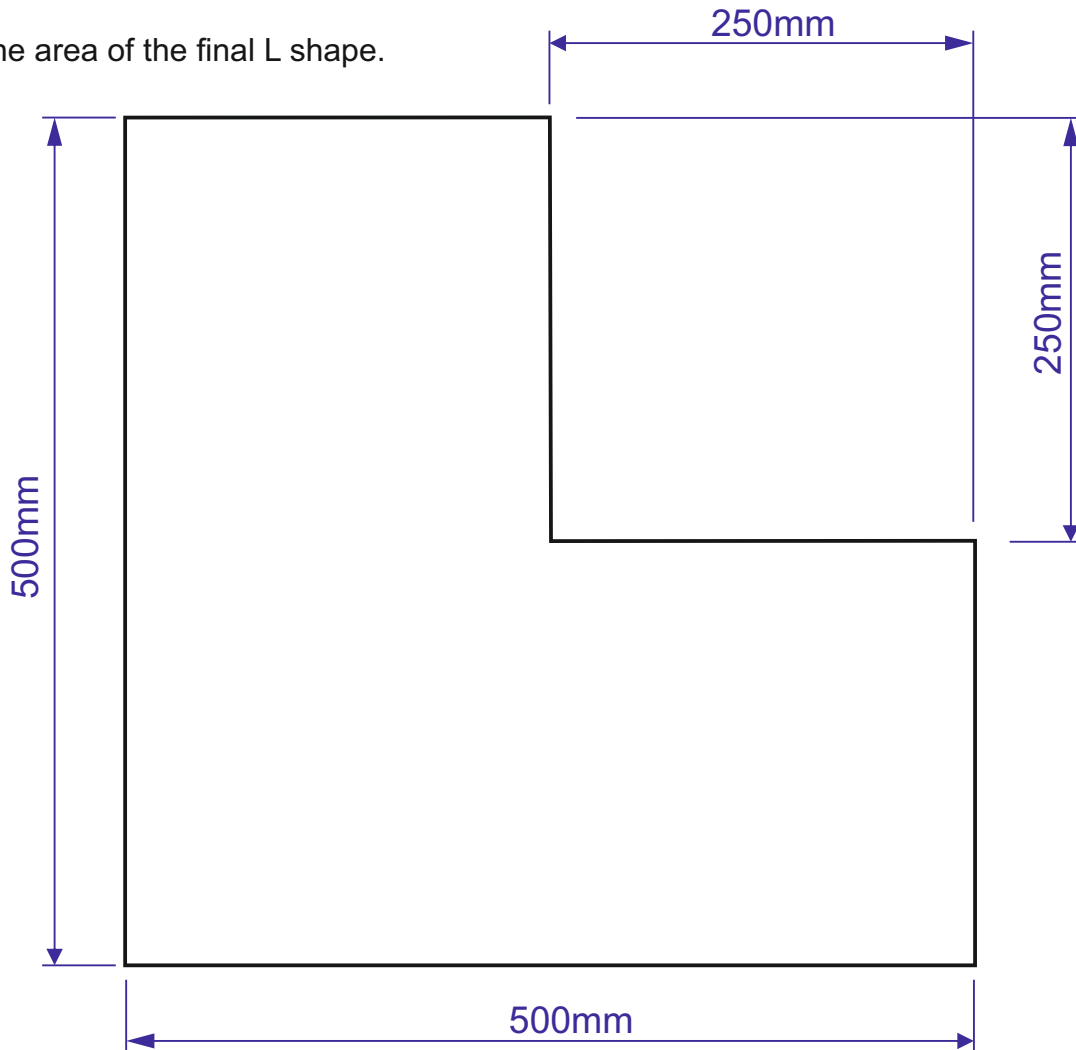


Calculate the area of the square shown opposite.
The length of one side is 60mm

AREA OF A SQUARE - EXAMINATION QUESTION

A plywood panel for a cabinet is seen below.

1. Calculate the area of the plywood required, before it is cut to shape (the overall square of plywood required, before it is cut to an L shape).
2. Calculate the area of the final L shape.



First, calculate the area of the uncut plywood, by treating it as a square 500mm x 500mm.

AREA = LENGTH OF SIDE X LENGTH OF SIDE

$$\text{AREA} = 500 \times 500$$

$$\text{AREA} = 250000\text{mm}^2$$

Now, calculate the area of the smaller piece to be cut away, during the shaping of the panel

AREA = LENGTH OF SIDE X LENGTH OF SIDE

$$\text{AREA} = 250 \times 250$$

$$\text{AREA} = 62500\text{mm}^2$$

Now subtract the smaller area from the area of the uncut plywood.

$$250000 - 62500 = 187500$$

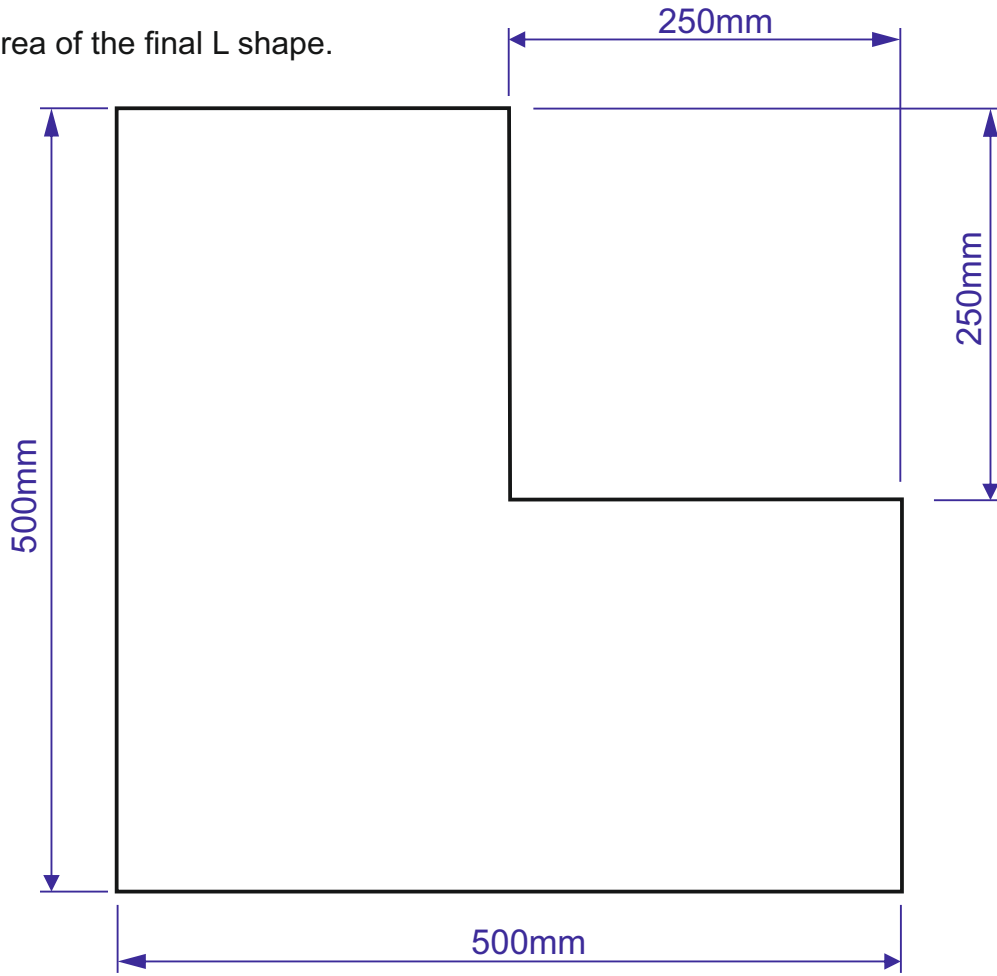
AREA OF FINAL SHAPED PIECE IS 187500mm²

AREA OF A SQUARE - EXAMINATION QUESTION

A plywood panel for a cabinet is seen below.

1. Calculate the area of the plywood required, before it is cut to shape (the overall square of plywood required, before it is cut to an L shape).

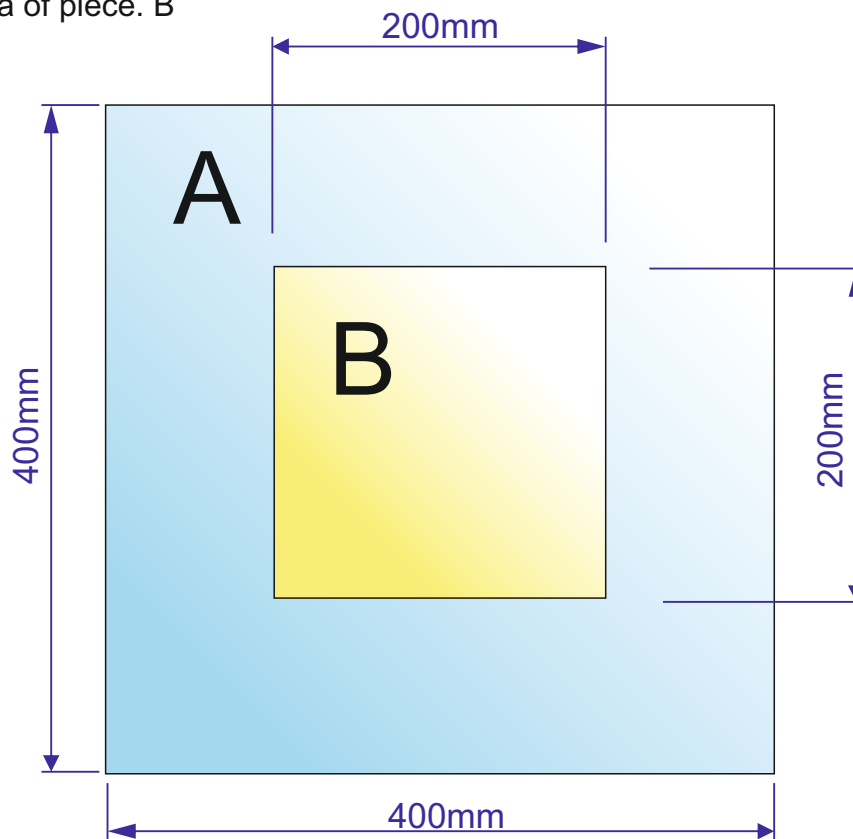
2. Calculate the area of the final L shape.



AREA OF A SQUARE - EXAMINATION QUESTION

An acrylic window for a school project seen below, is composed of two pieces, accurately cut to size on a laser cutter. They fit perfectly together.

1. Calculate the area of piece A
2. Calculate the area of piece. B



First, calculate the entire area of 'A', without the centre piece being removed, by treating it as a square 400mm x 400mm.

$$\begin{aligned}\text{AREA} &= \text{LENGTH OF SIDE} \times \text{LENGTH OF SIDE} \\ \text{AREA} &= 400 \times 400 \\ \text{AREA} &= 160000\text{mm}^2\end{aligned}$$

Now, calculate the area of the smaller piece 'B', which is also the size of the piece to be removed from 'A'.

$$\begin{aligned}\text{AREA} &= \text{LENGTH OF SIDE} \times \text{LENGTH OF SIDE} \\ \text{AREA} &= 200 \times 200 \\ \text{AREA} &= 40000\text{mm}^2\end{aligned}$$

Now subtract the smaller area 'B' from the area of 'A'. The answer will be the area of 'A' with its central window of material removed.

$$160000 - 40000 = 120000\text{mm}^2$$

AREA OF FINAL SHAPED PIECE 'A' WITHOUT CENTRAL PIECE IS 120000mm²
AREA OF PIECE 'B' IS 40000mm²

AREA OF A SQUARE - EXAMINATION QUESTION

An acrylic window for a school project seen below, is composed of two pieces, accurately cut to size on a laser cutter. They fit perfectly together.

1. Calculate the area of piece A
2. Calculate the area of piece B

