RICH MATHEMATICAL TASK BOOKLET

MEASUREMENT
Perimeter, Area

YEAR 7/8
EVEN YEARS

Copy Masters

Task 1

Estimate how long the _____ is and record the estimate and measurement unit.
Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.
Measurement –
Convert the measurement to two different units.
Measurement conversion –
Measurement conversion –

Estimate how long the _____ is and record the estimate and measurement unit.
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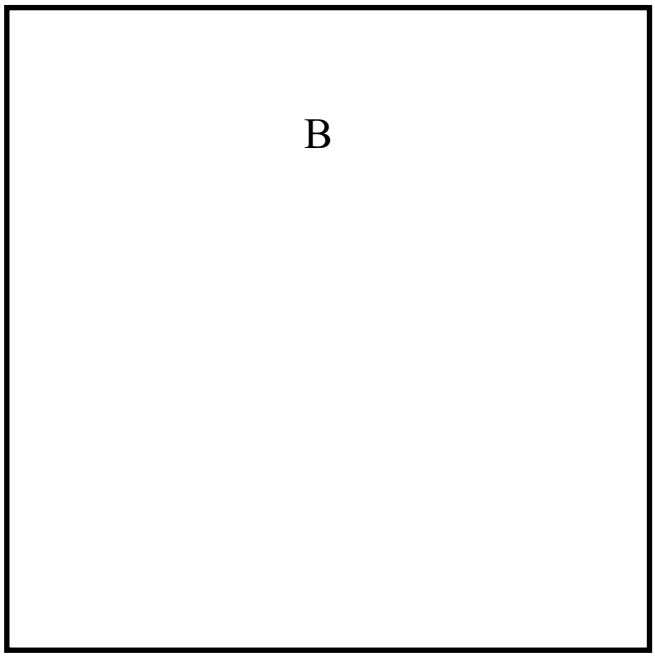
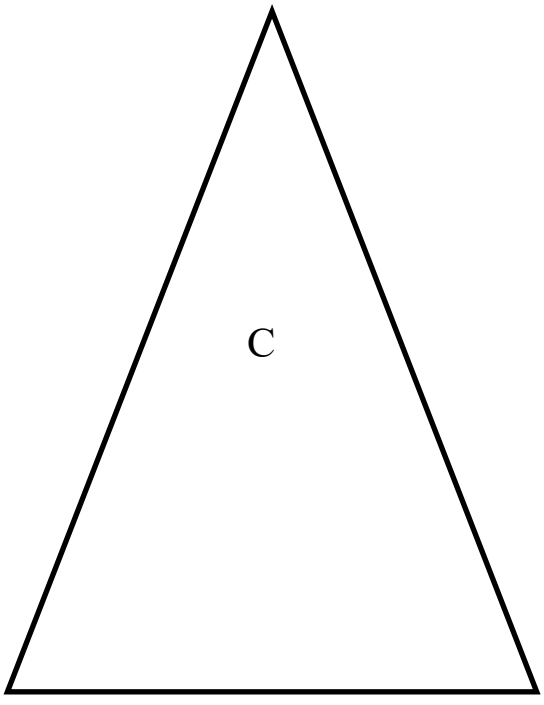
Task 1 (continued)
Estimate how long the _____ is and record the estimate and measurement unit.
Estimate -

Use a measuring tool to measure the length and record the measurement count and measurement unit.
Measurement –
Convert the measurement to two different units.
Measurement conversion –
Measurement conversion –

Task 1 (independent)

Use a ruler to find the perimeter of the shapes below.



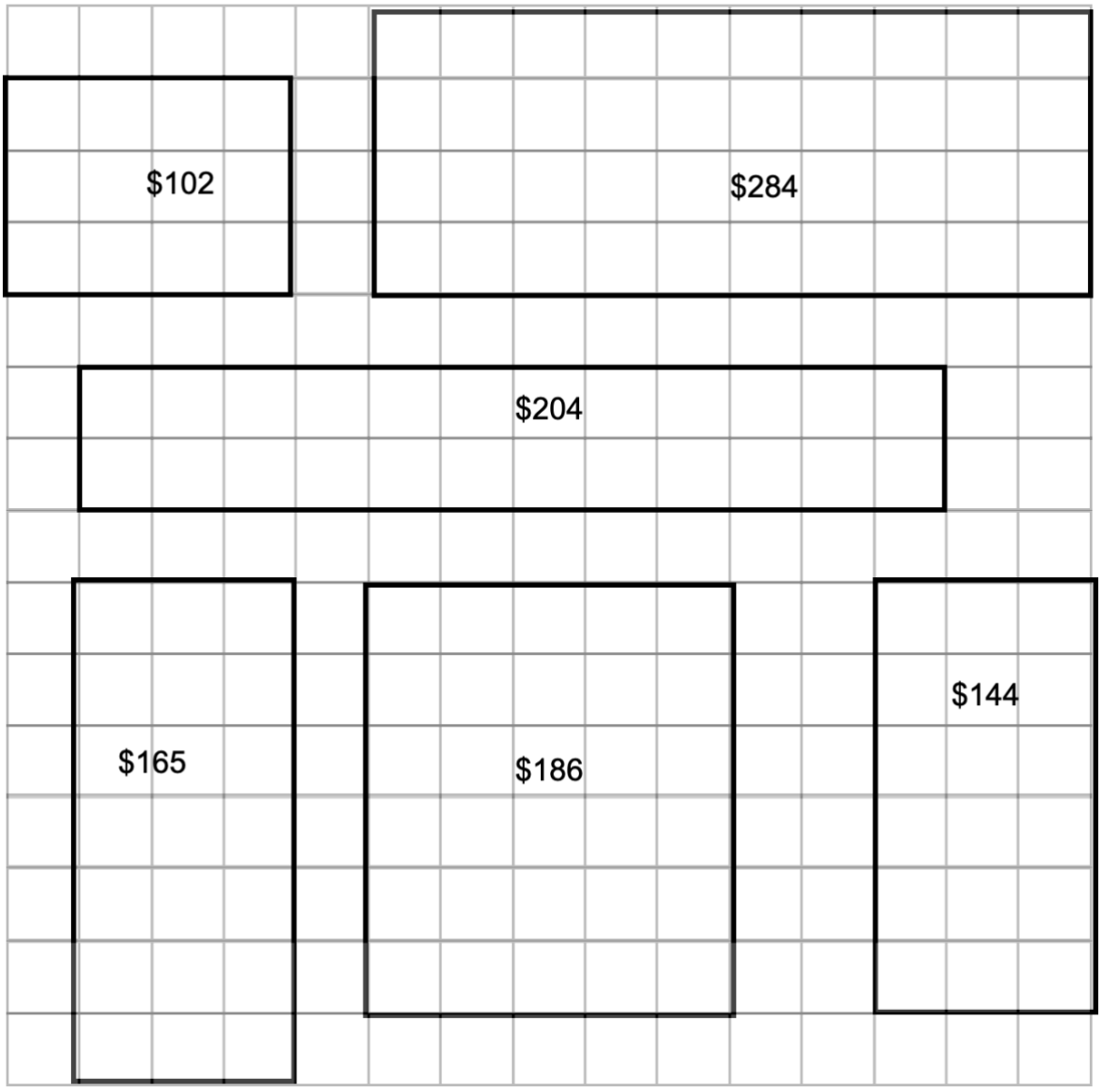


Task 2

Kiwi Carpet supplies sells custom made rugs for different sized rooms.

They calculate the price of these by using the area of rug and the perimeter of the lining for the rug.

Work out how they arrived at the prices of the rugs.



Task 2 (independent task)

The City Council is asking for help and suggestions for designs for a new library building. It will be built using square modules. The squares are scaled so that 1 cm represents 1 metre.

Use the squares to make different designs for the library.

Draw around the outline and record the perimeter and area with the measurement unit.

What is the smallest perimeter you can make?

What is the area?

The council decides to put the books lining the walls so to fit the most books, they would like to have a building with the longest perimeter.

What is the longest perimeter you can make?

What is the area?

Task 3

What would be the perimeter and area of the _____?

Use the metre ruler or square metre.

Estimate perimeter (m):

Estimate area (m^2):

Measurement perimeter (m):

Measurement area (m^2):

Convert perimeter measurement to a different unit:

Convert area measurement to a different unit:

What would be the perimeter and area of the _____?

Use the metre ruler or square metre.

Estimate perimeter (m):

Estimate area (m^2):

Measurement perimeter (m):

Measurement area (m^2):

Convert perimeter measurement to a different unit:

Convert area measurement to a different unit:

Task 3 (continued)

What would be the perimeter and area of the _____?

Use the metre ruler or square metre.

Estimate perimeter (m):

Estimate area (m^2):

Measurement perimeter (m):

Measurement area (m^2):

Convert perimeter measurement to a different unit:

Convert area measurement to a different unit:

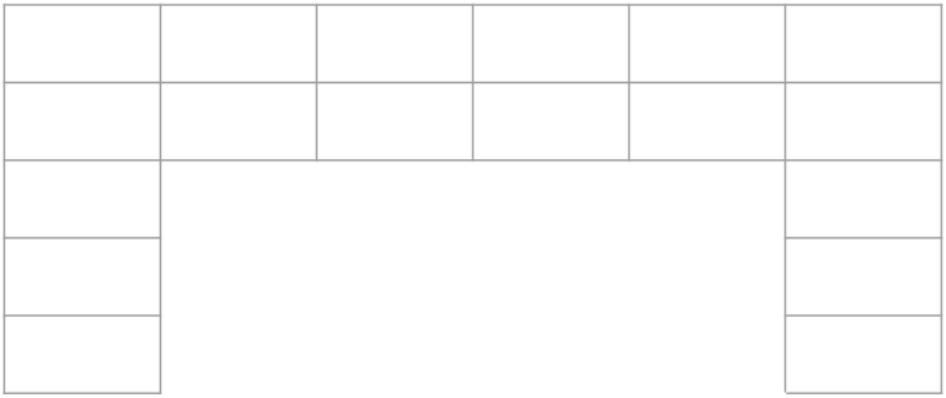
Task 3 (independent)

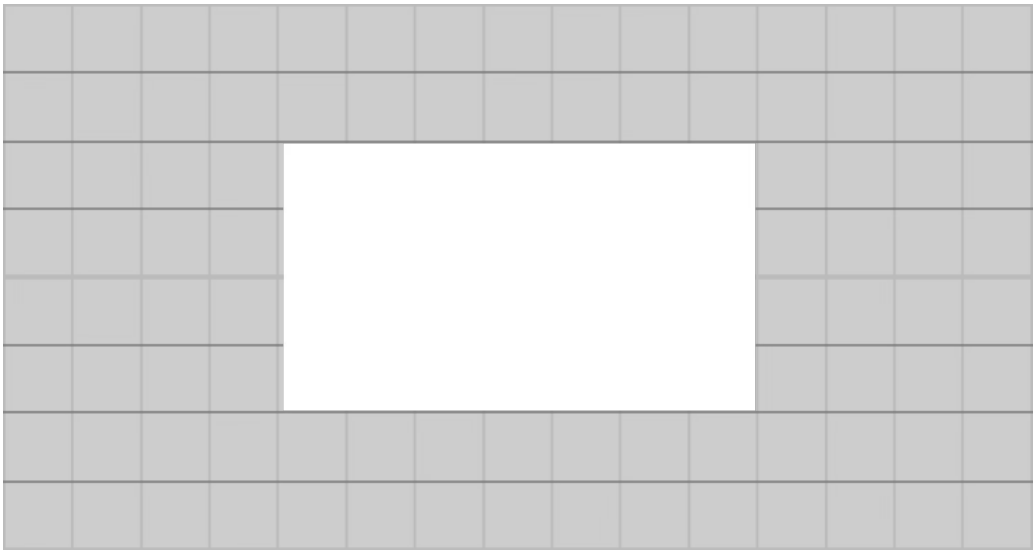
Here are the footprints for new buildings for a school.

Each square represents 1 $m^{2.}$

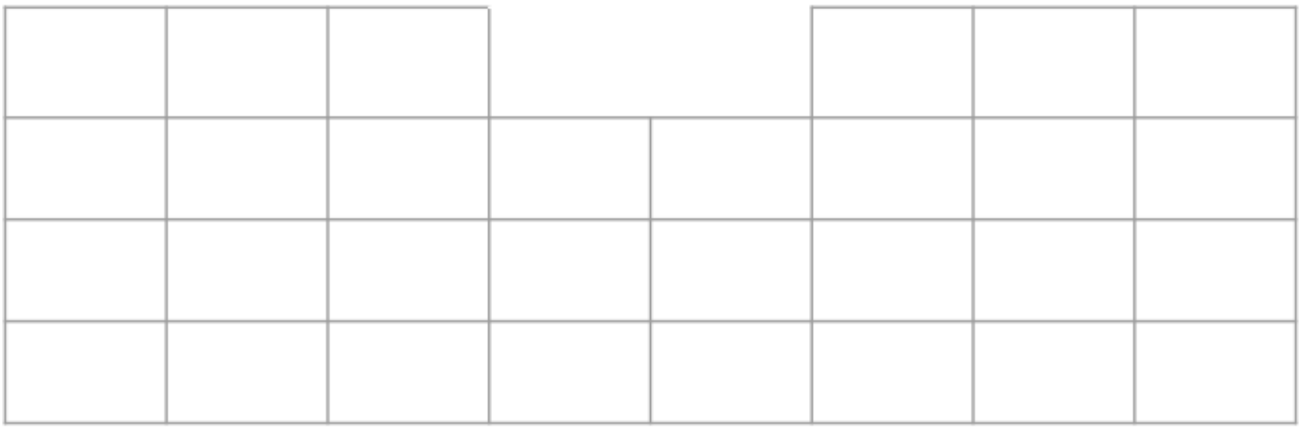
Find the area and perimeter for each footprint.

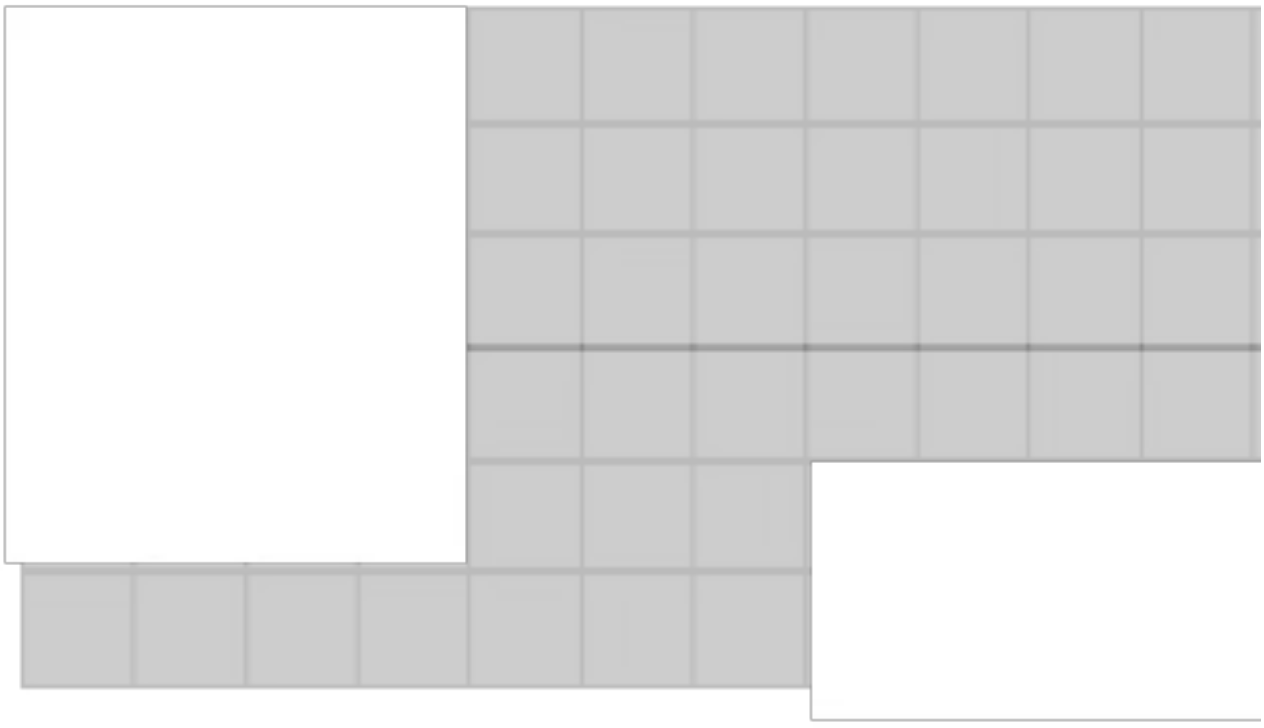
What do you think each space could be used for?





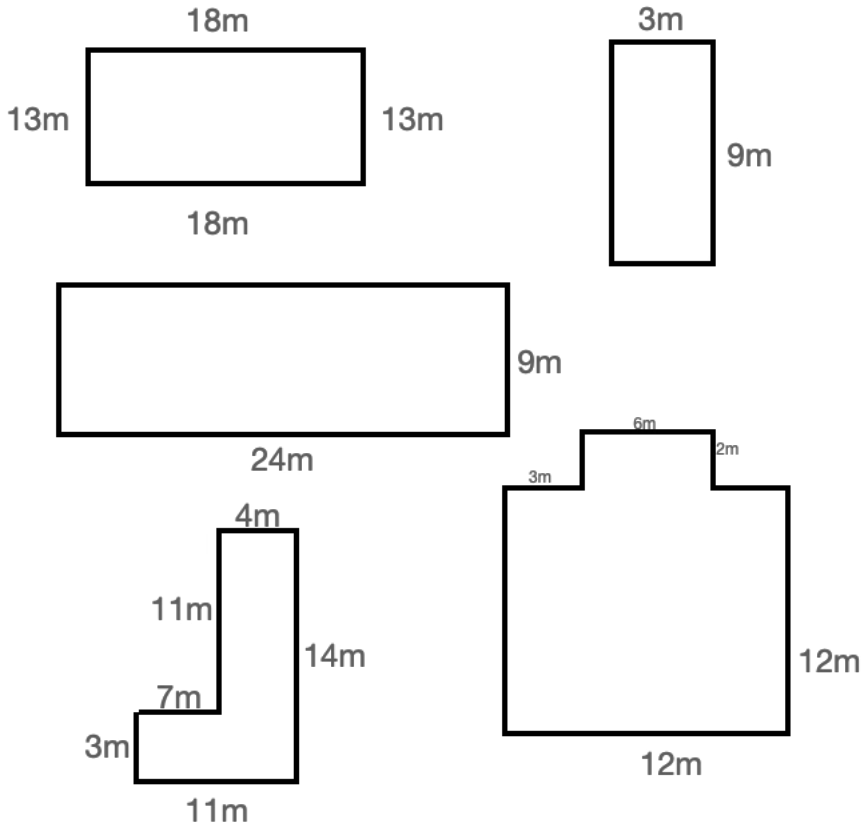
Task 3 (independent continued)





Task 4

Find the area and perimeter of these building designs.
Year 7 Option:



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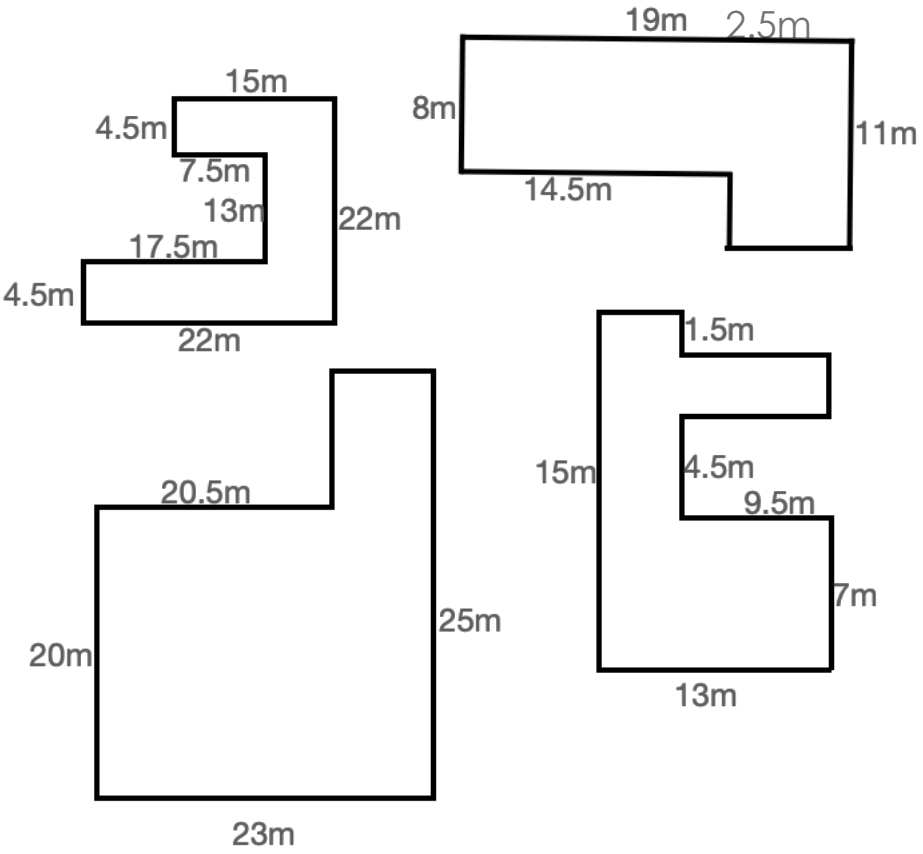
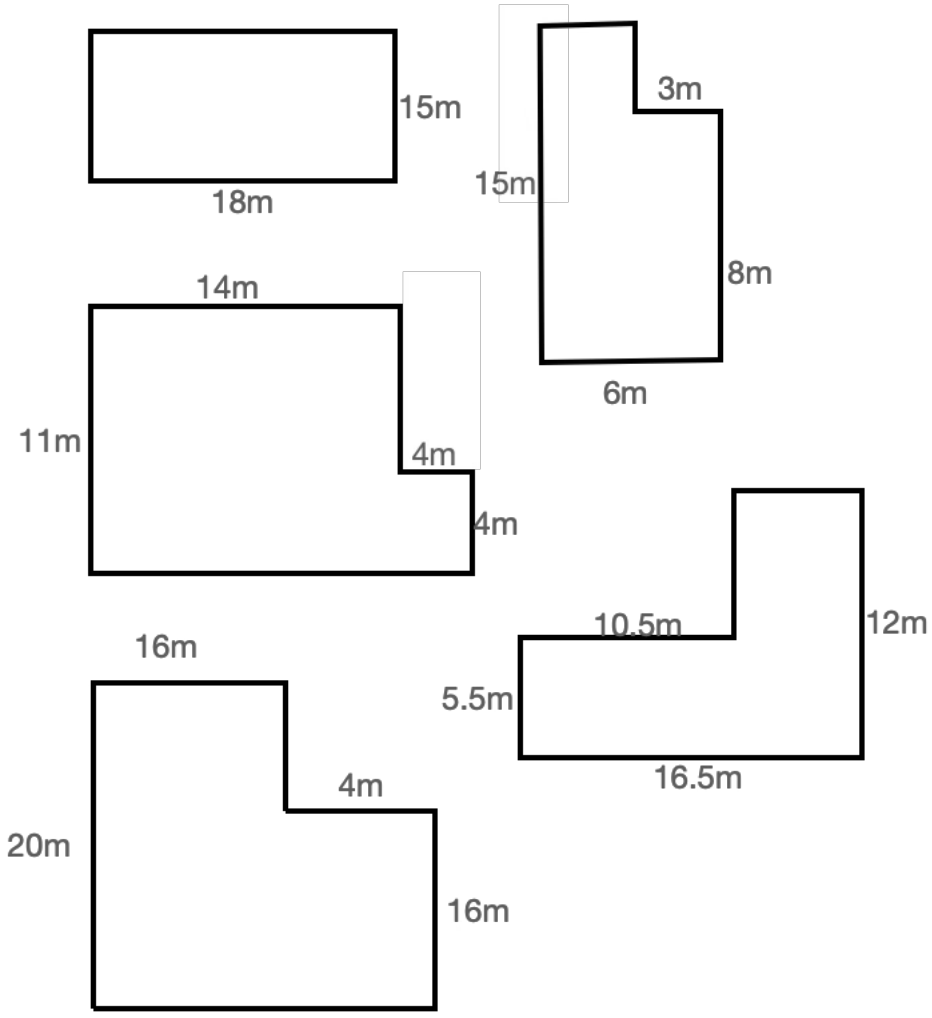
Year 8 Option:



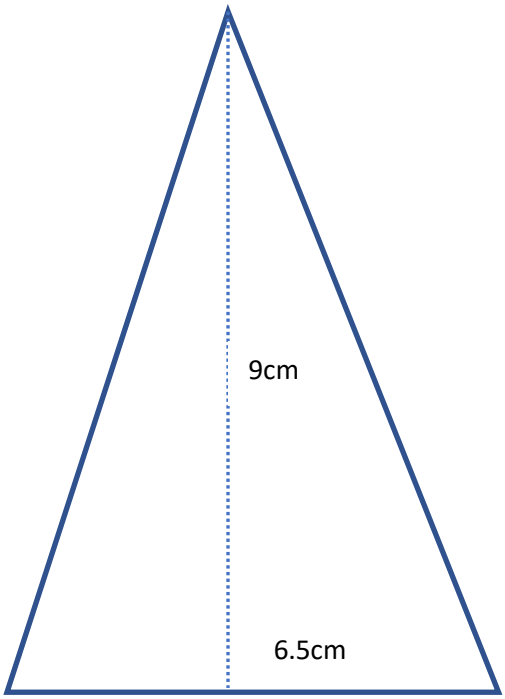
Task 4 (independent)

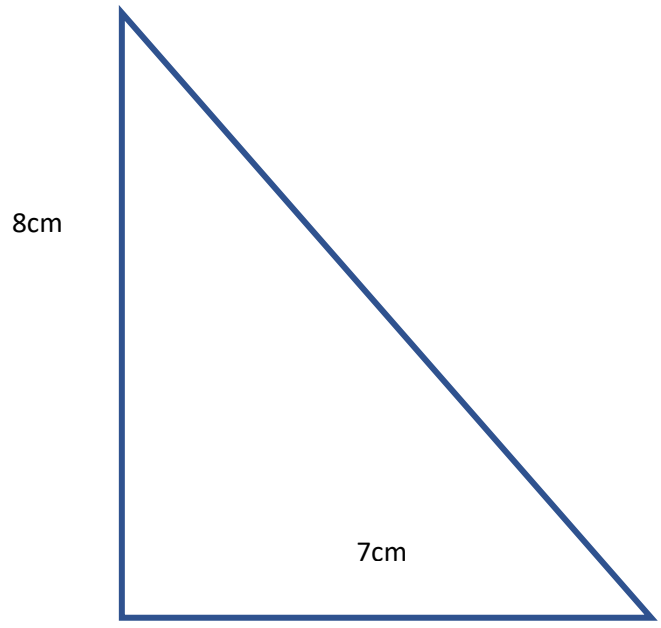
Find the area and perimeter of these building designs.



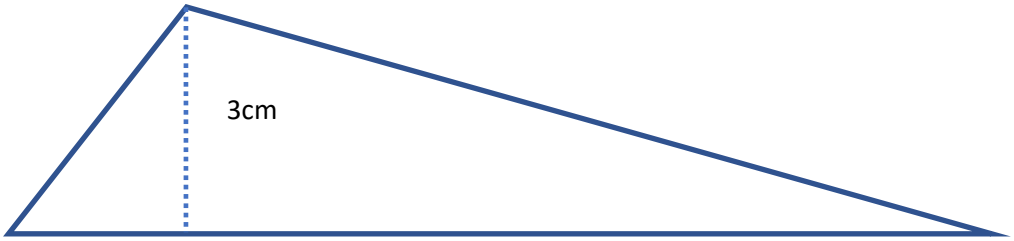
Task 5

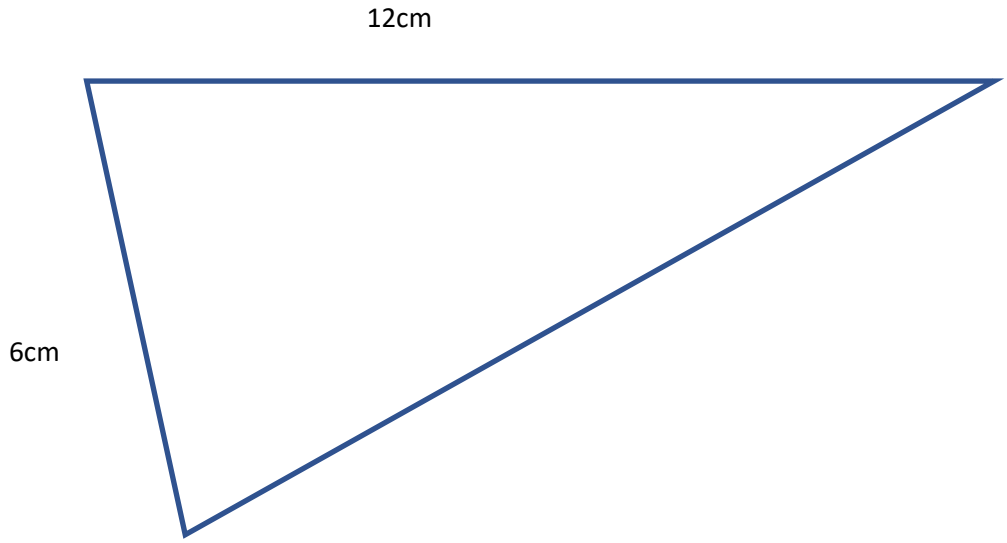
Find the area and perimeter of these triangles:





Task 5 (continued)





Task 5 (independent)

Draw a right-angled triangle with a base of 8 cm and an area of 24 cm^2

Draw a triangle that has a base of 12 cm and an area of 30 cm^2

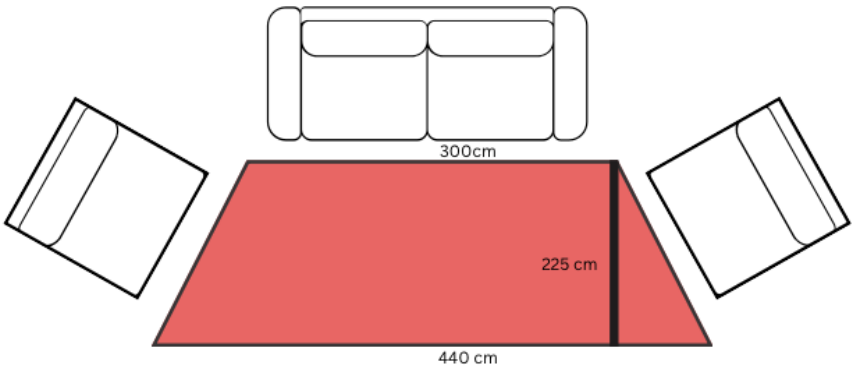
Draw a non-right-angled triangle with an area of 15 cm^2.

Draw as many different triangles as you can with an area of 10 cm^2.

Task 6

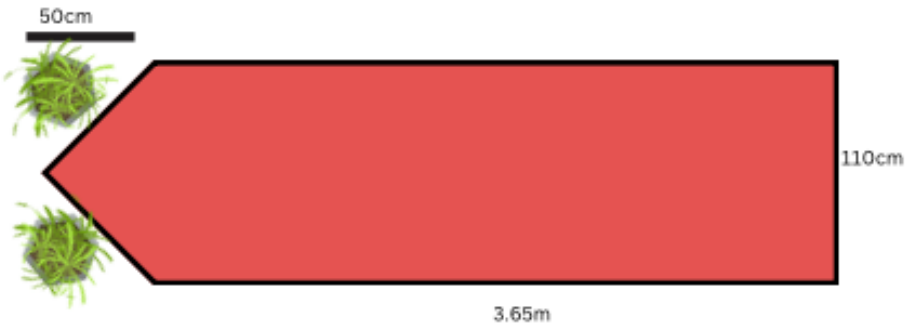
Alethia is designing a new rug for the lounge floor.

Work out the area measurement for the fabric.



Alethia is also designing a hallway rug and wants to keep her pot plants off the rug.

Work out the area measurement for the fabric required to make the rug.

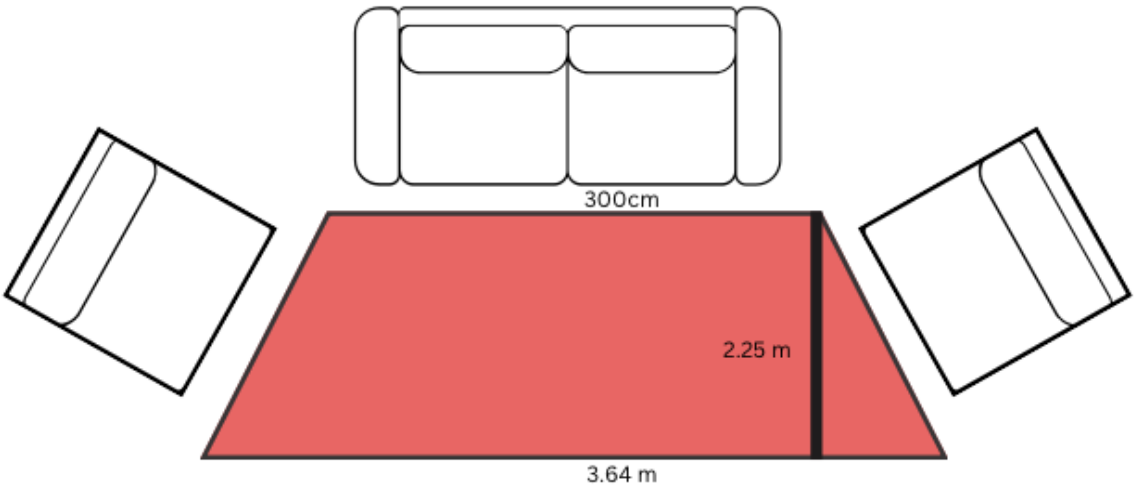


How much fabric does Alethia need altogether?

Task 6 (independent)

Alethia is designing a new rug for the lounge floor.

Work out the area measurement for the fabric.

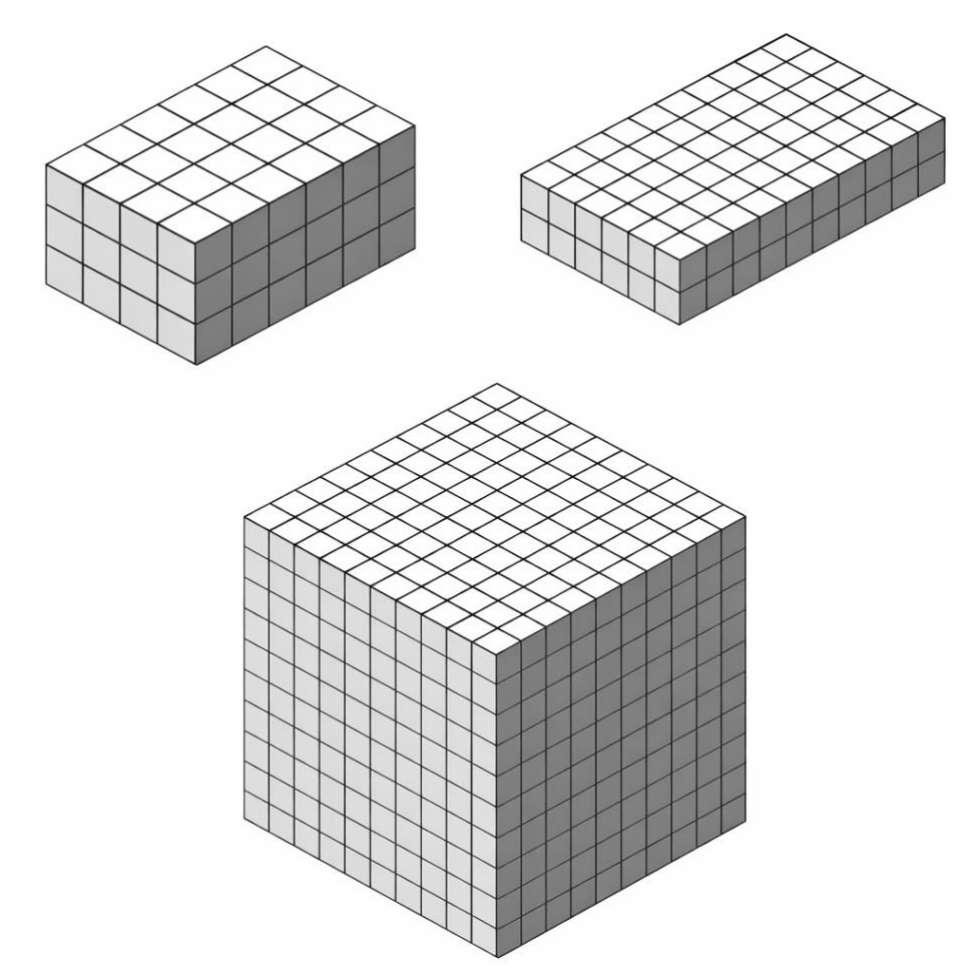


Alethia is also designing a hallway rug and wants to keep her pot plants off the rug.

Work out the area measurement for the fabric required to make the rug.

How much fabric does Alethia need altogether?

Task 7



Here are some rectangular cuboids.

Find the volume of each cuboid.

Write an explanation for how to find the volume of any cuboid.

Note: Putting a rule is NOT an explanation!

Task 7 (independent)

Use 12 x 1 cm^3 cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Use 28 x 1 cm^3 cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Use 20 x 1 cm^3 cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Task 8

Our church hall has a room for practising singing for special occasions. The dimensions of the room are width 5.1 m, length 7 m, height 2.5 m.

Our church membership has increased so we need a larger room. We decided to double all three dimensions.

Does that mean that the new room will have double the volume? Make sure you justify and explain your thinking.

Task 8 (independent)

Here is the volume of some rectangular blocks of wood.

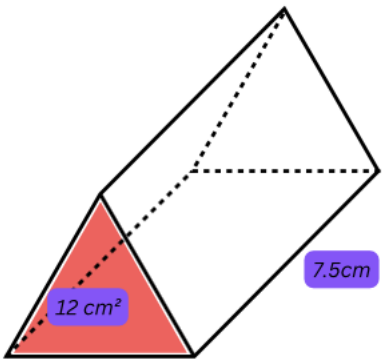
Draw the outline of the block of wood and mark the dimensions in cm which could match the volume.

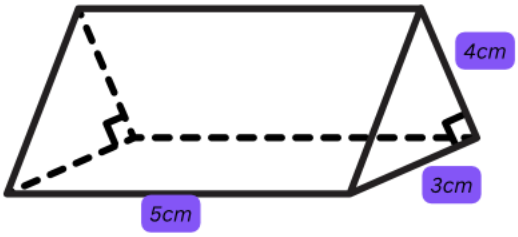
There may be more than one solution so make sure that you have all possible solutions.

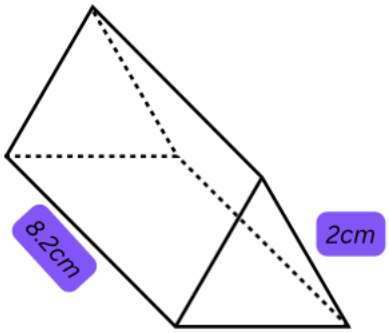
- 60 cm^3
- 12 cm^3
- 99 cm^3
- 45 cm^3
- 13 cm^3
- 150 cm^3

Task 9

Find the volume of these triangular prisms:

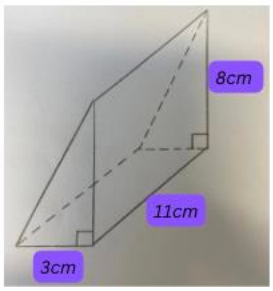




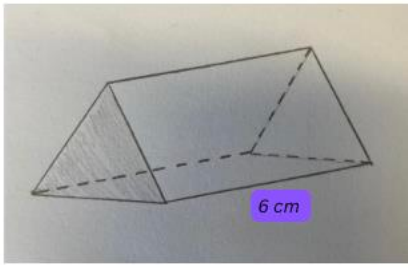


Task 9 (independent task)

Find the volume of these triangular prisms:



The volume of this triangular prism is 90 cm³. What is the area of the shaded triangle?



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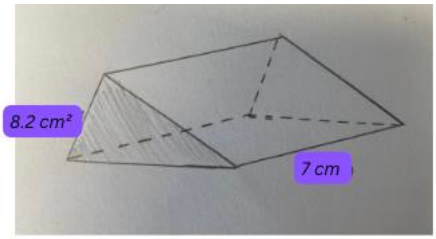
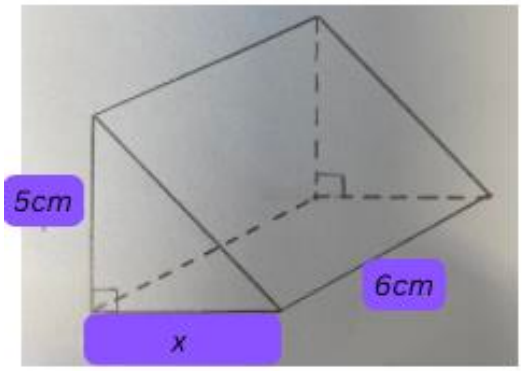


The volume of this triangular prism is 84 cm³. What is the length of x?



Task 10

Our recycling bin is a rectangular cuboid with the dimensions of length 1.8 m, width 1. 5m, height 1.2 m.

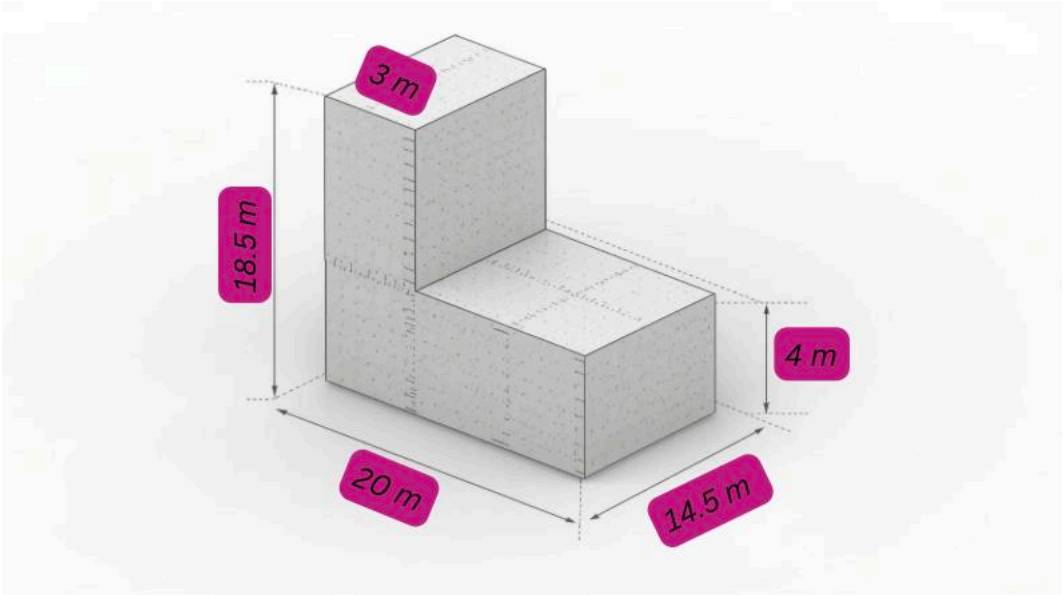
Every day we add approximately 0.25 m^3 to it.

How many days will it take until it is filled?

Task 10 (independent)

Cooper believes to calculate the volume of this shape you split it into two different rectangular cuboids and add them together but Frankie believes there are measurements missing and this can not be solved.

Who is correct? Justify your response.



Task 11

We are sending a container to the Islands with school supplies.

The container is:

- Length: 6 m
- Width: 2.4 m
- Height: 2.6 m

The school supplies are packed into six different sized boxes.

What are the different lengths, widths and heights of the boxes being packed into the container?

You must ensure that the whole container is filled.

Task 11 (independent)

My measurements are in a jumble. Sort them out so they match correctly.

When you have finished write another five for someone else to solve.

Speed of a car on a motorway	2	metres squared
Height of a classroom door	750	km
Mass of a pencil	60	g
Duration of a maths lesson	100	m
Length of a football field	7	km
Temperature of boiling water	25	hour
Distance between two towns	1	kg
Mass of a full schoolbag	100	ml
Area of a classroom	12	m
Capacity of a water bottle	90	degrees

Task 12

An aquarium tank measures 2.4 m high, 6 m long, and 1.5 m wide and is filled with water.

The density of water is 1000 kg/m^3.

What is the mass of the water in the tank?