RICH MATHEMATICAL TASK BOOKLET

MEASUREMENT

YEAR 7/8
ODD YEARS

Copy Masters

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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 –

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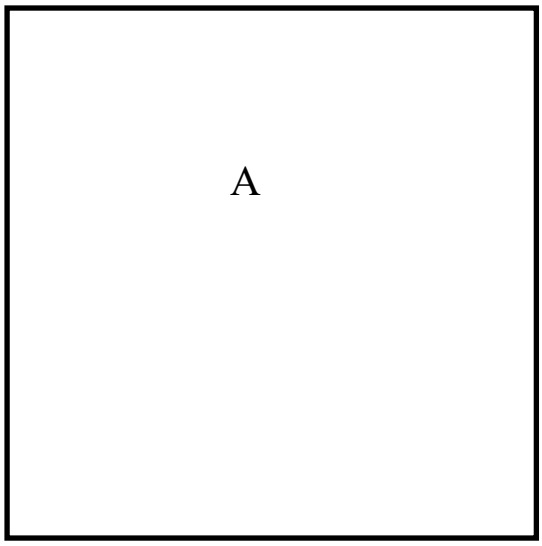
Task 1 (continued)

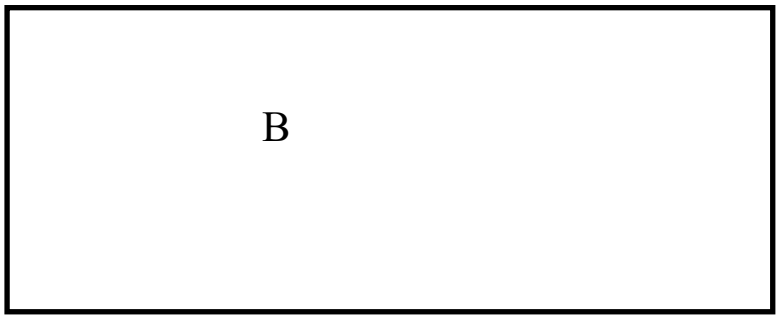
Estimate how long the _____ is and record the estimate and measurement unit.
Estimate -

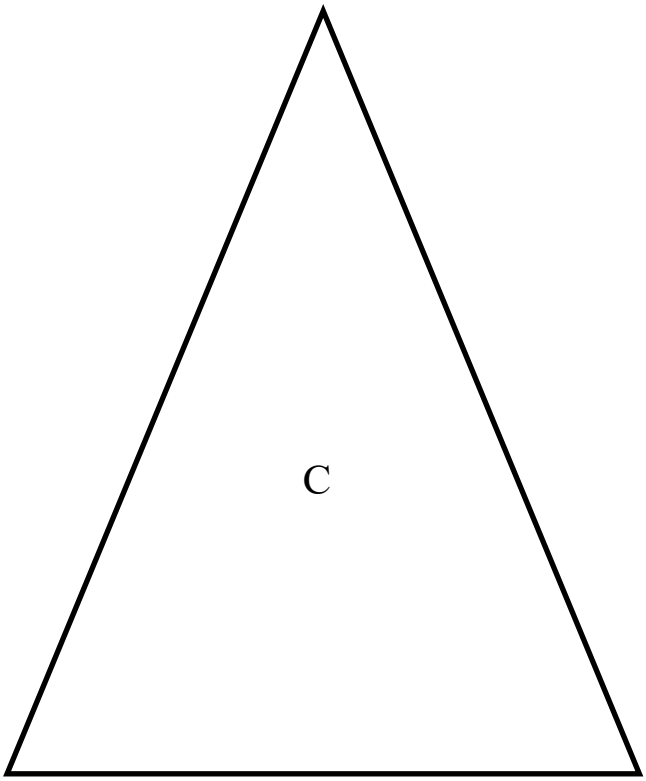
Use a measuring tool to measure the length and record the measurement count and measurement unit.
Measurement –
Convert the measurement to two different units.
Measurement conversion –
Measurement conversion –

Task 1 (independent)

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







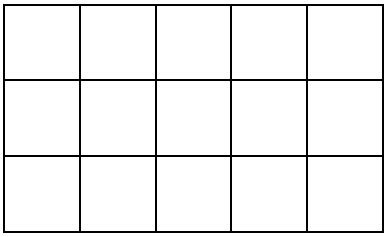
Task 2

Layla is helping her Nanny choose tiles for their laundry. She needs to measure the floor so that she can get the right amount of tiles. On the second page is the outline of a scaled model of the floor in the laundry.

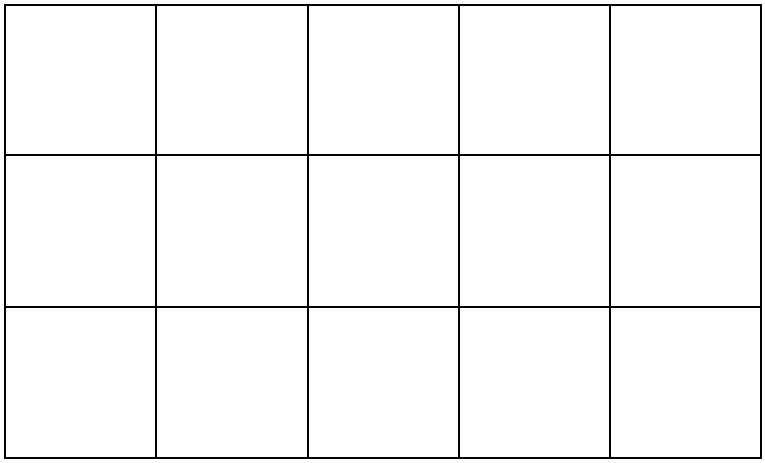
They have to pay 50 cents for each of the smaller tiles and $1 each for the medium tiles, and $3 each for the large tiles.

Which is the better deal?

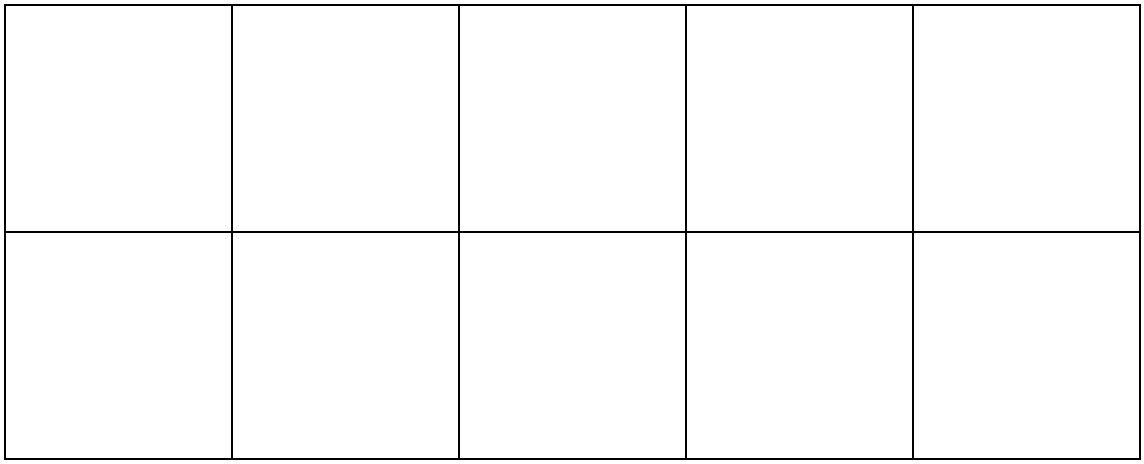
Smaller Tiles:



Medium Tiles



Large Tiles:



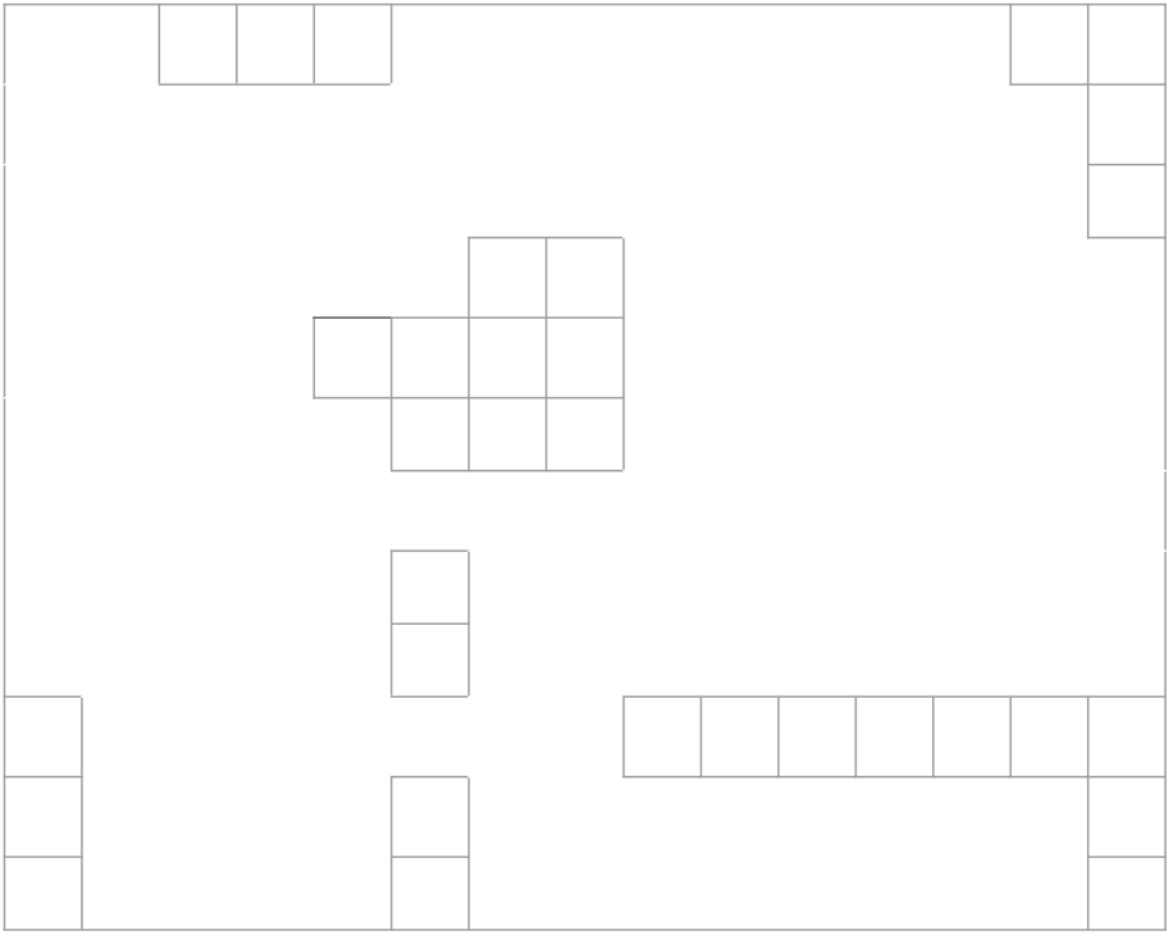
Task 2:

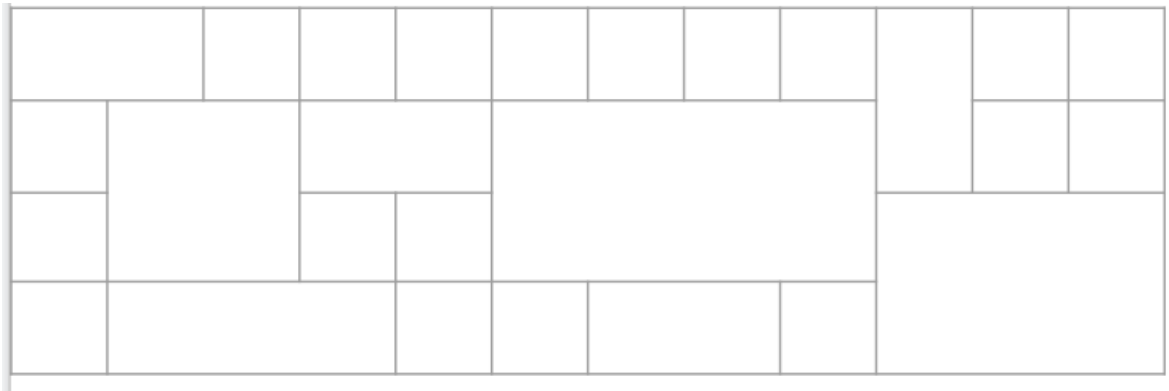
LAUNDRY FLOOR

Task 2 (independent task)

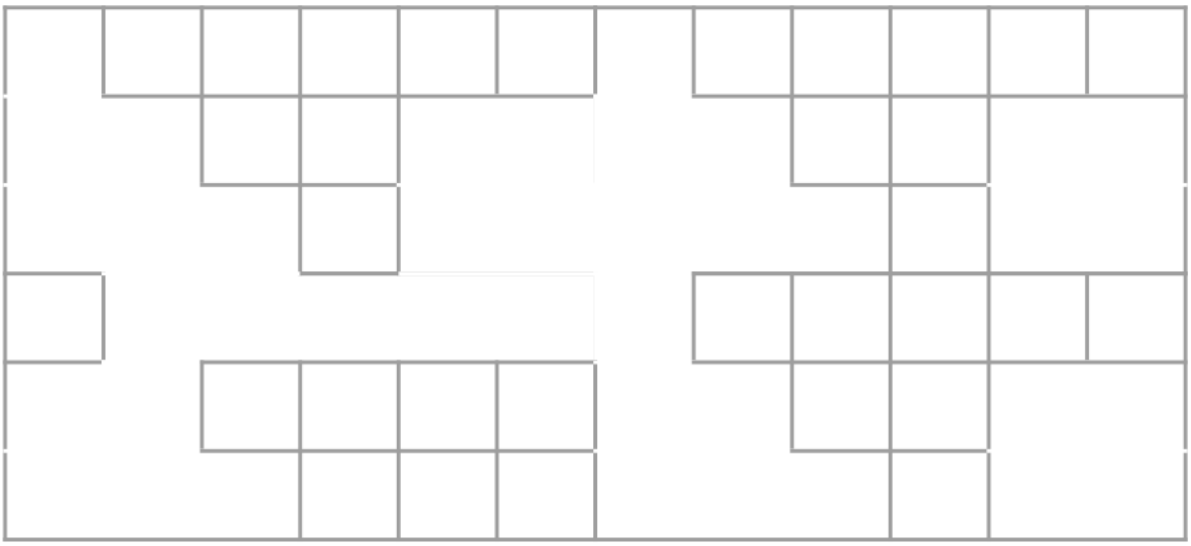
Layla was helping her Nanny work out how many tiles they needed for the bathroom walls and floor. She got distracted and didn't finish.

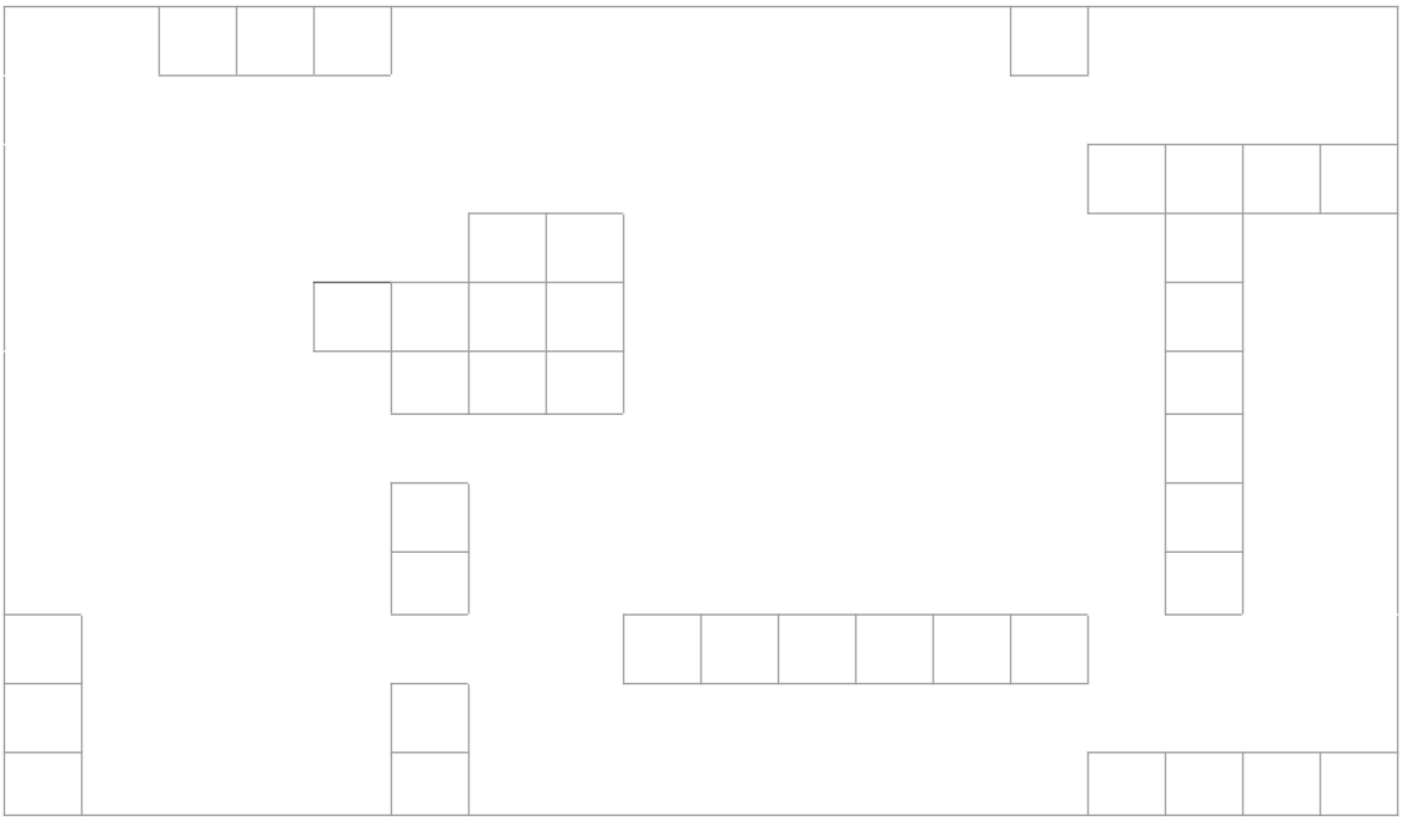
Can you help by working out a quick way to find the area and number of tiles that would be needed for each space?





Task 2 (independent task continued)





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:

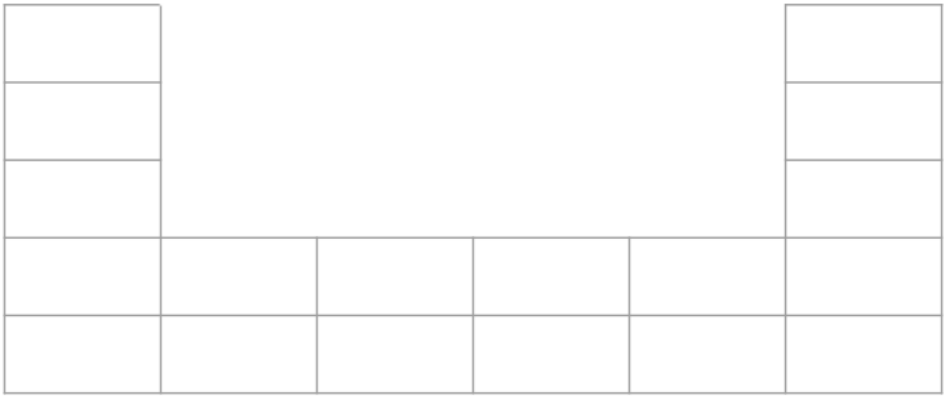
Task 3 (independent)

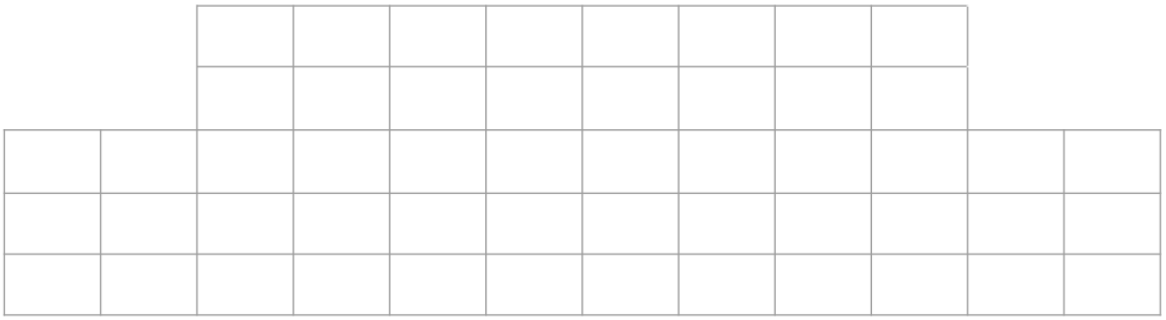
Here are the footprints for new buildings for a school.

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

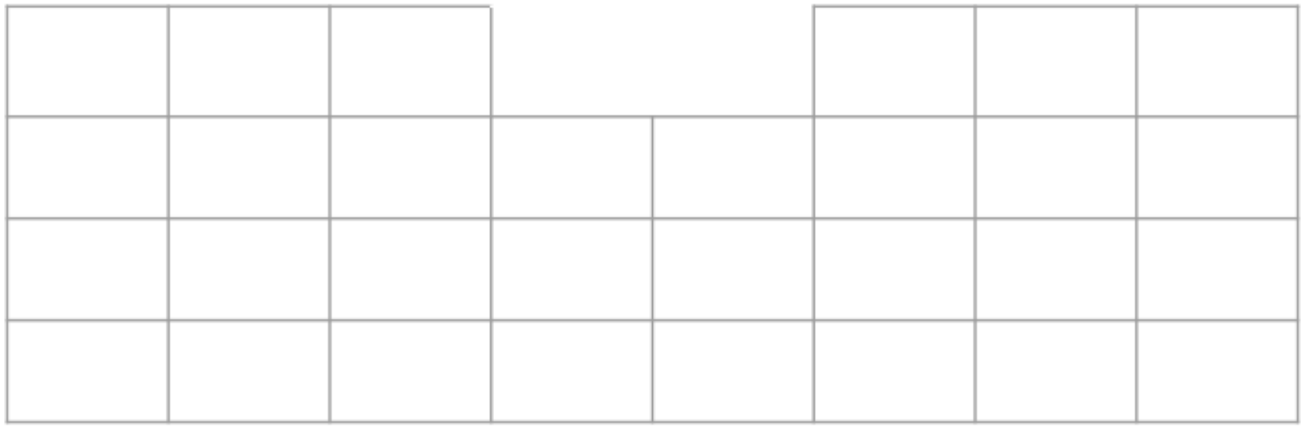
Find the area and perimeter for each footprint.

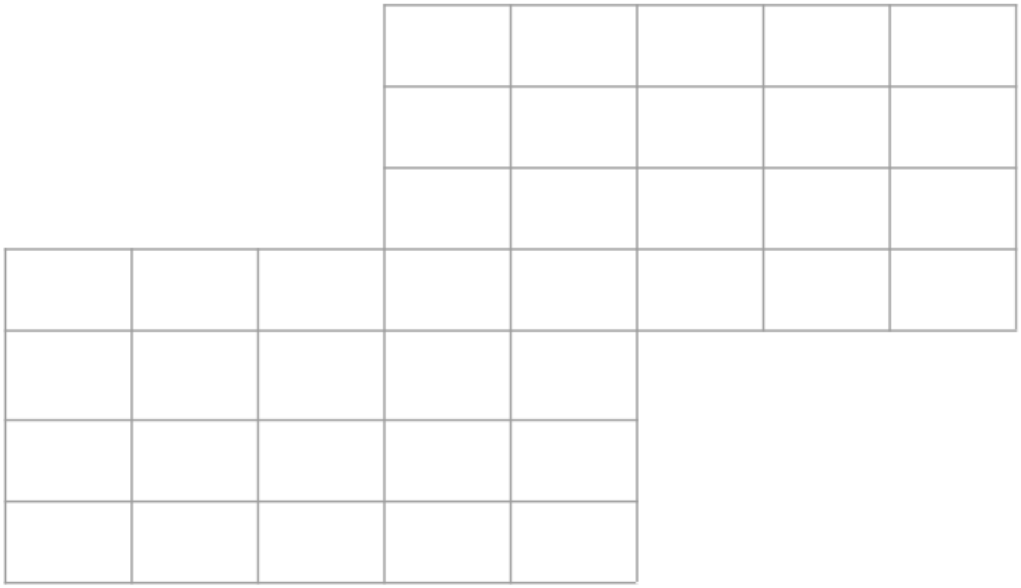
What do you think each space could be used for?





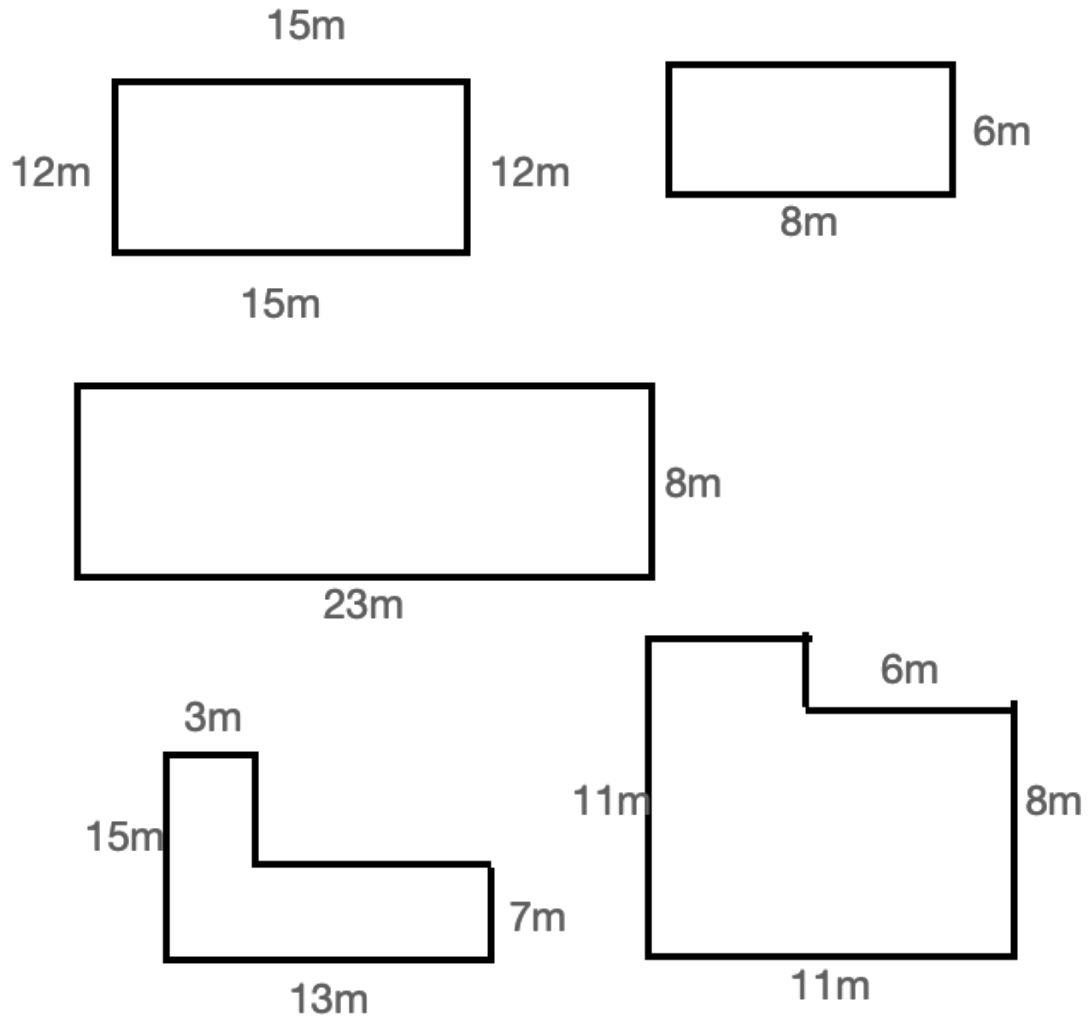
Task 3 (independent continued)



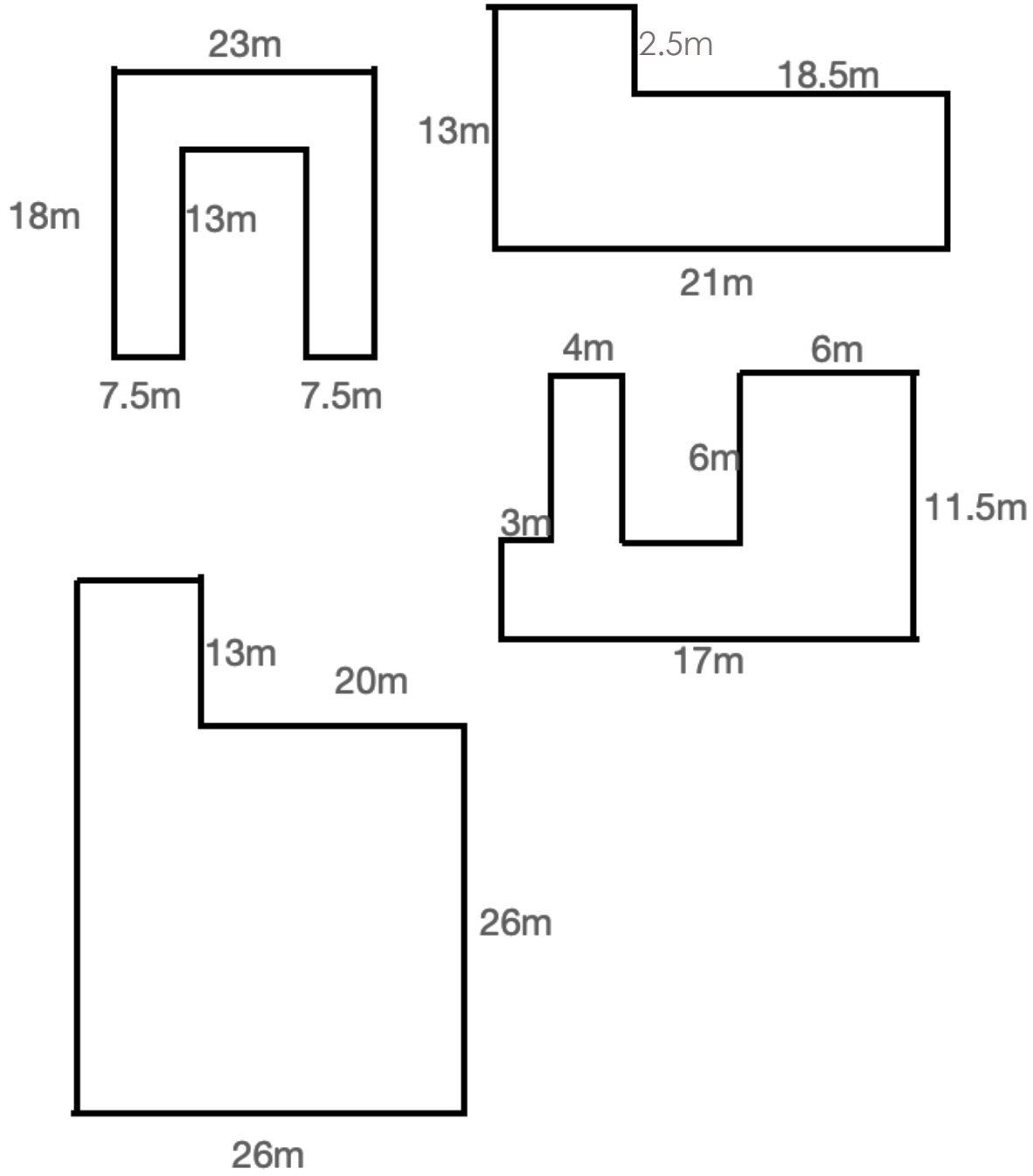


Task 4

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

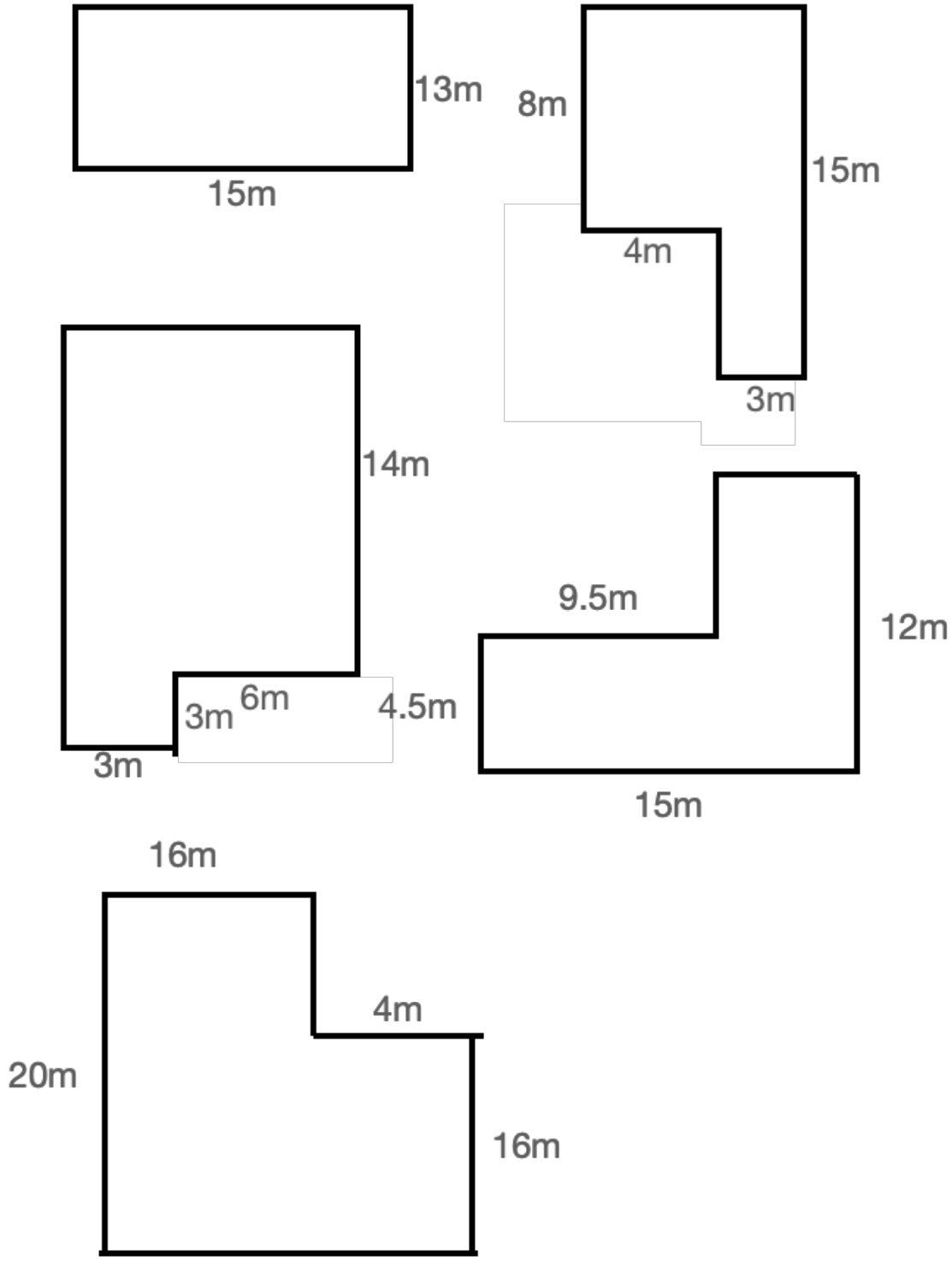


Task 4


23m
18m
13m
7.5m
7.5m
2.5m
18.5m
13m
21m
4m
6m
6m
3m
11.5m
17m
13m
20m
26m
26m

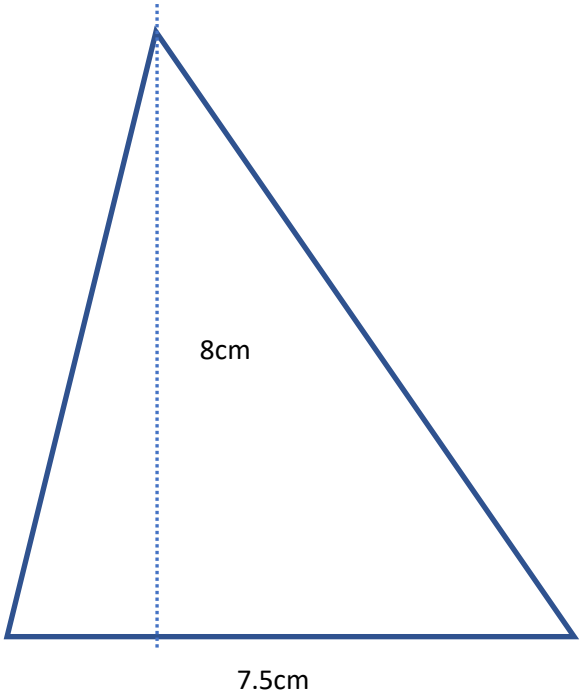
Task 4 (independent)

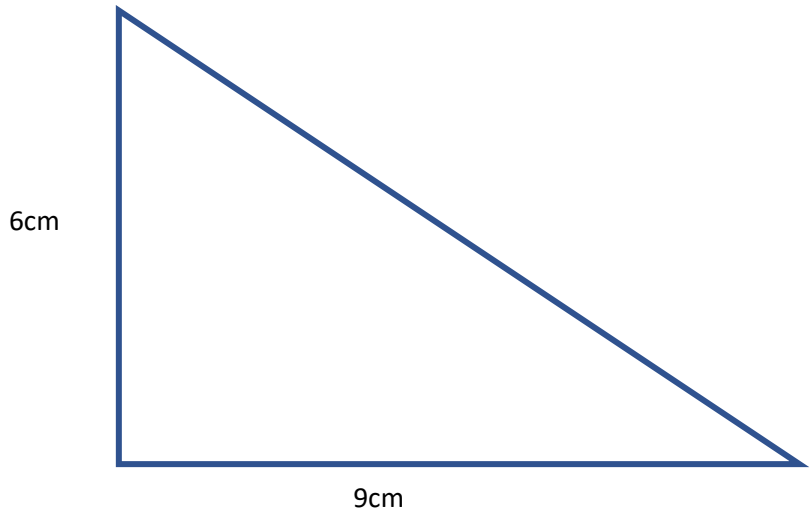
Find the area and perimeter of these building designs.



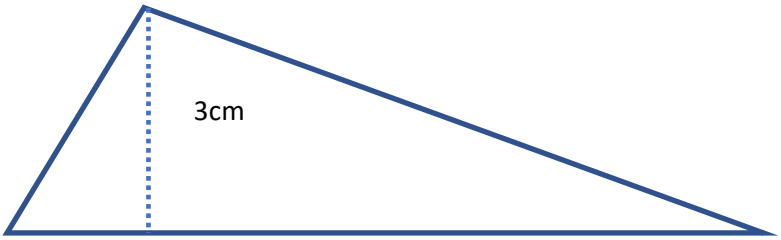
Task 5

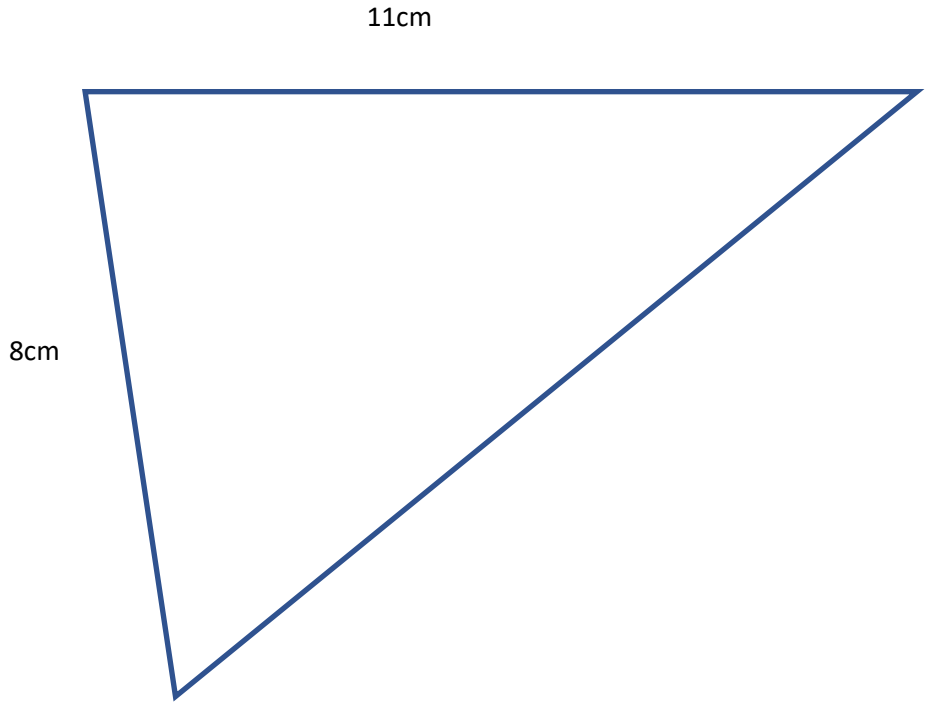
Find the area and perimeter of these triangles:





Task 5 (continued)





Task 5 (independent)

Draw a right-angled triangle that has an area of 16 cm^2.

Draw a triangle that has a base length of 10 cm and one side length of 6 cm. What would the area be?

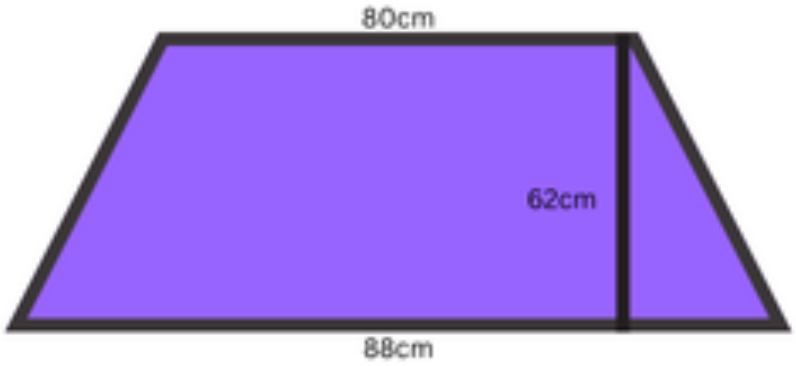
Draw a non-right-angled triangle with an area of 20cm^2.

Draw as many triangles as you can with an area of 6cm^2.

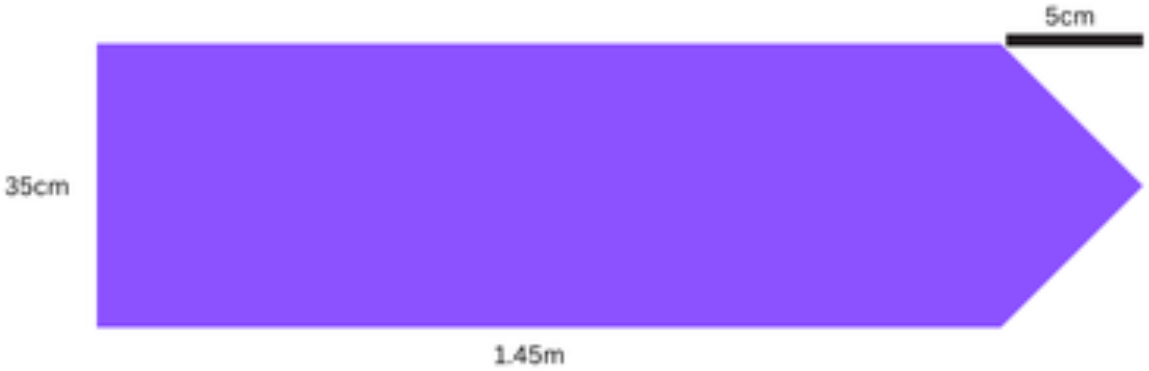
Task 6

Tiana is designing a wall-hanging and would like to ensure she has enough material.

Work out the area measurement for the fabric.



Tiana's second design for a wall hanging looks like this:



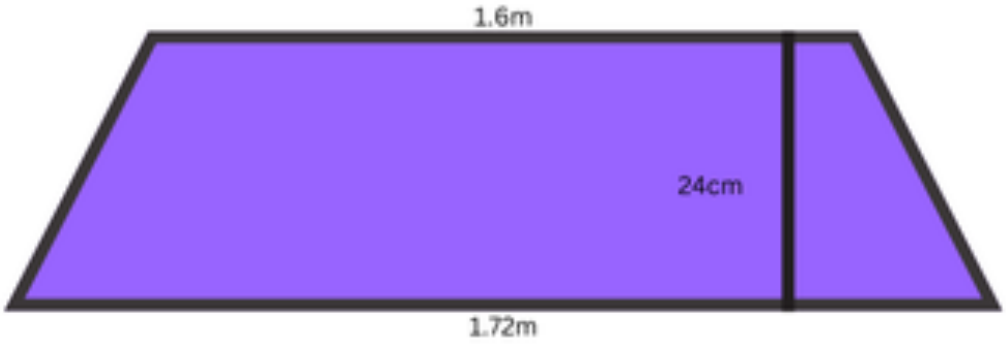
Work out the area measurement for the fabric.

How much fabric does Tiana need altogether?

Task 6 (independent)

Tiana is designing a wall-hanging and would like to ensure she has enough material.

Work out the area measurement for the fabric.



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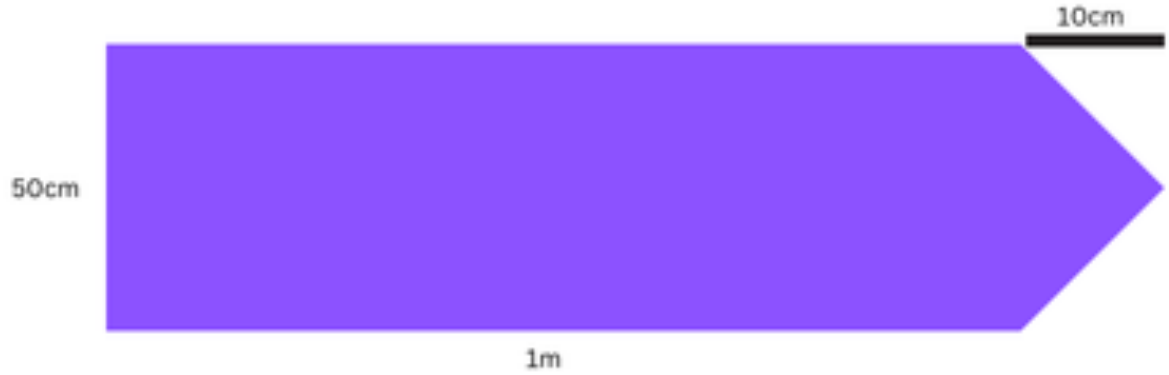
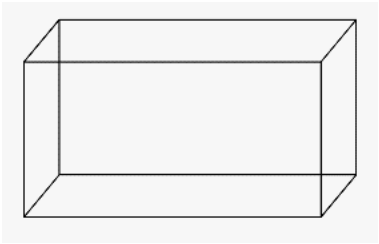
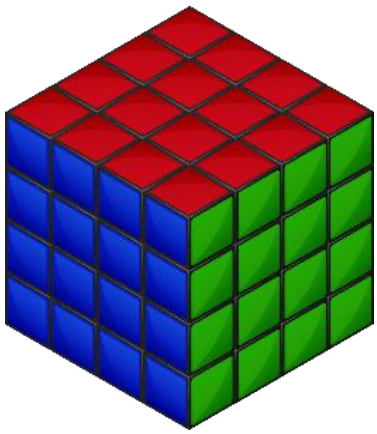


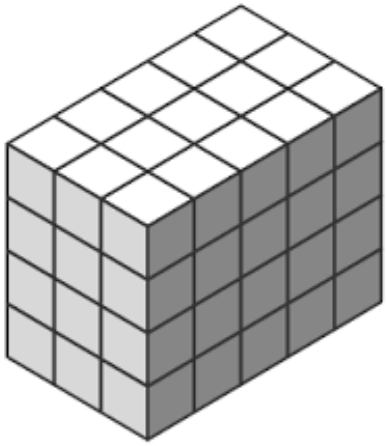
Work out the area measurement for the fabric.

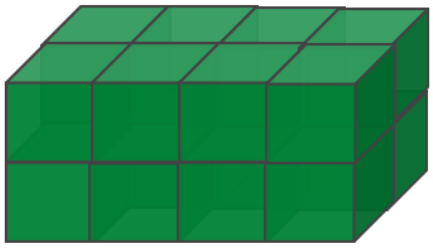
How much fabric does Tiana need altogether?

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 10 x 1 cm³ cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Use 24 x 1 cm³ cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Use 35 x 1 cm³ cubes to build as many different box-shaped (cuboid) buildings as possible. Draw a 3-D representation for each cuboid.

Task 8

Tasa and his family are sending a package in a shipping container to Tonga. The shipping company has limited the size of the package to a maximum combined length and girth of 4 metres. What is the greatest volume that they could get for a rectangular cuboid package?

Task 8 (independent)

What cuboids can you build with these dimensions?

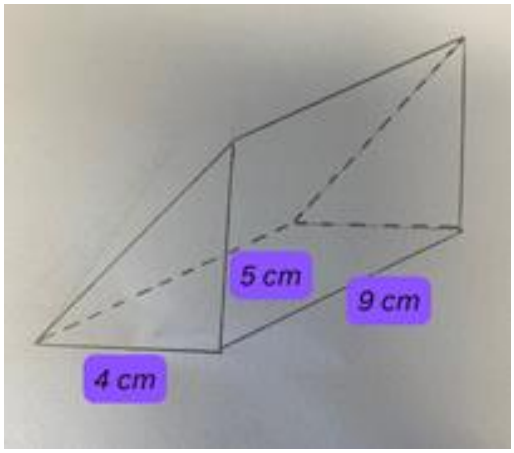
What would be the volume for the cuboid?

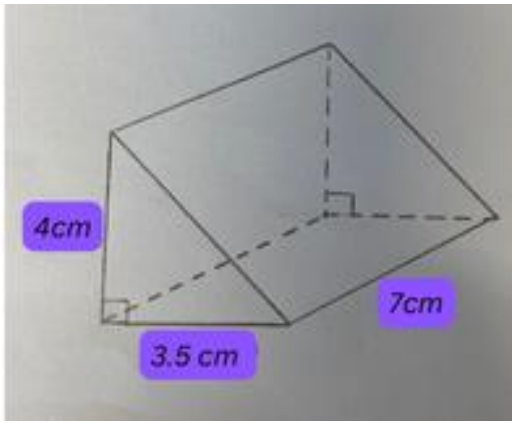
Use a representation to justify your answers.

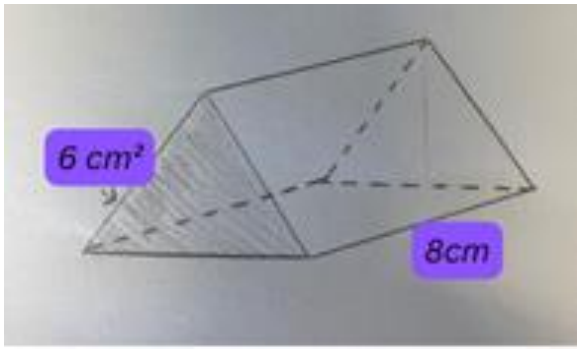
1. Length is 6 cubes; width is 3 cubes; height is 2 cubes.
2. Length is 10 cubes; width is 8 cubes; height is 3 cubes.
3. Length is 13 cubes; width is 4 cubes; height is 2 cubes.
4. Length is 12 cubes; width is 8 cubes; height is 4 cubes.
5. Length is 10 cm, width is 9 cm, height is 5 cm.
6. Length is 3 cm, width is 7 cm, height is 5 cm.
7. Length is 7 cm, width is 2 cm, height is 10 cm.
8. Length is 5 cm, width is 6 cm, height is 7 cm.

Task 9

Find the volume of these triangular prisms:

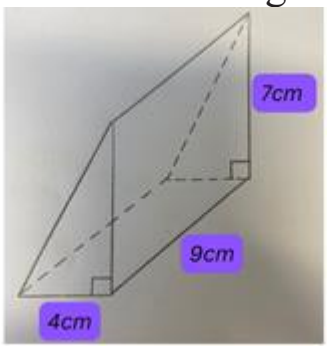




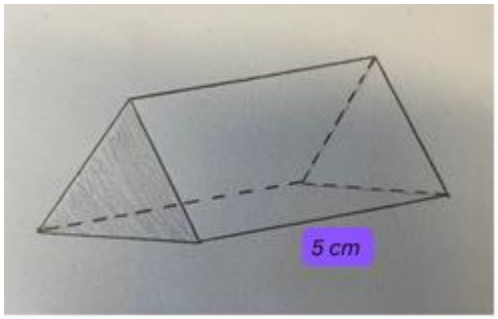


Task 9 (independent task)

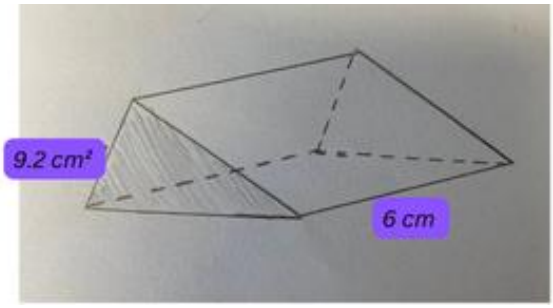
Find the volume of these triangular prisms:



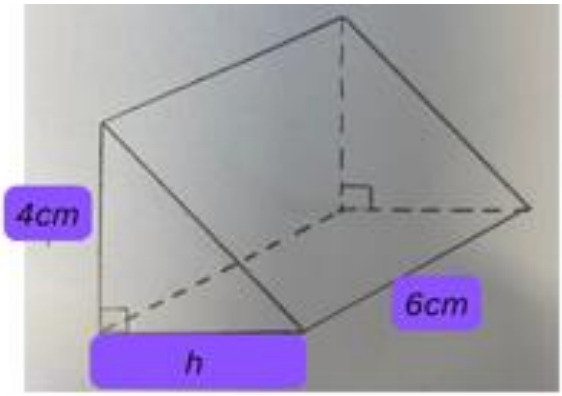
The volume of this triangular prism is 82 cm³. What is the area of the shaded triangle?



Find the volume of this triangular prism:

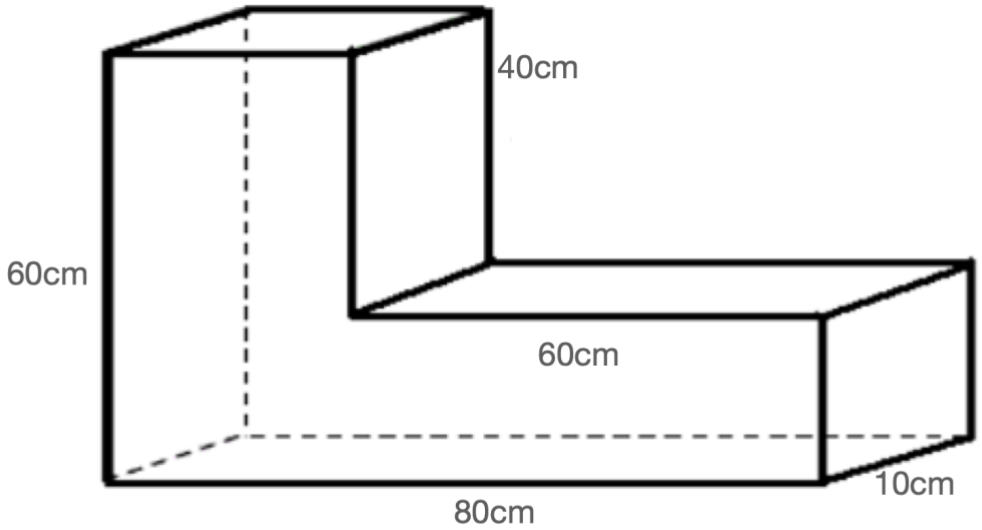


The volume of this triangular prism is 84 cm³. What is the length of h?



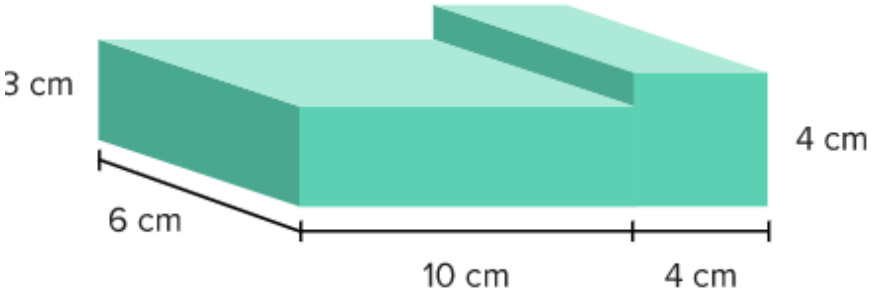
Task 10

Atawua is helping his father to build a step for the orometua. They make an L-shaped rectangular block like the one below to join two pieces of wood. His father challenges him to find the volume of this L-shaped rectangular structure. Can you help him?

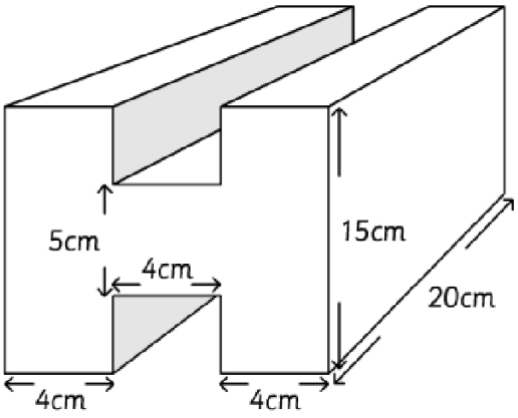


Task 10 (independent)

Find the volume:



Find the volume:



Task 11

The school garden has 6 wooden raised garden beds. Each one has the following external dimensions: length 3 m, width 1.25 m, height 20 cm.

Each wooden board is 0.8 cm thick.

Each garden bed should be filled to 1 cm below the top.

How many litres of soil will be needed to fill the garden beds?

Task 11 (independent)

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

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

Temperature of a fridge	0.06	seconds
Length of a human intestine	1.2	kg
Area covered by one litre of paint	324	ml
Time of one TV advert	4	°C
Mass of an adult	250	cm
Area of a piece of A4 paper	15	metres
Length of a cello	22	m^2
Capacity of a teaspoon	40	km
Mass of an orange	100	months
Temperature of the human body	10	metres
Length of the Equator	40000	m^2
Capacity of a car's petrol tank	70	grams
Height of the Eiffel Tower	120	°C
Gestation of an elephant	37	litres

Task 12

Your baby sisters bath measures 70 cm long, 50 cm wide and 45 cm high.

If the bath is filled to $\frac{3}{5}$ of its height how much water is used?