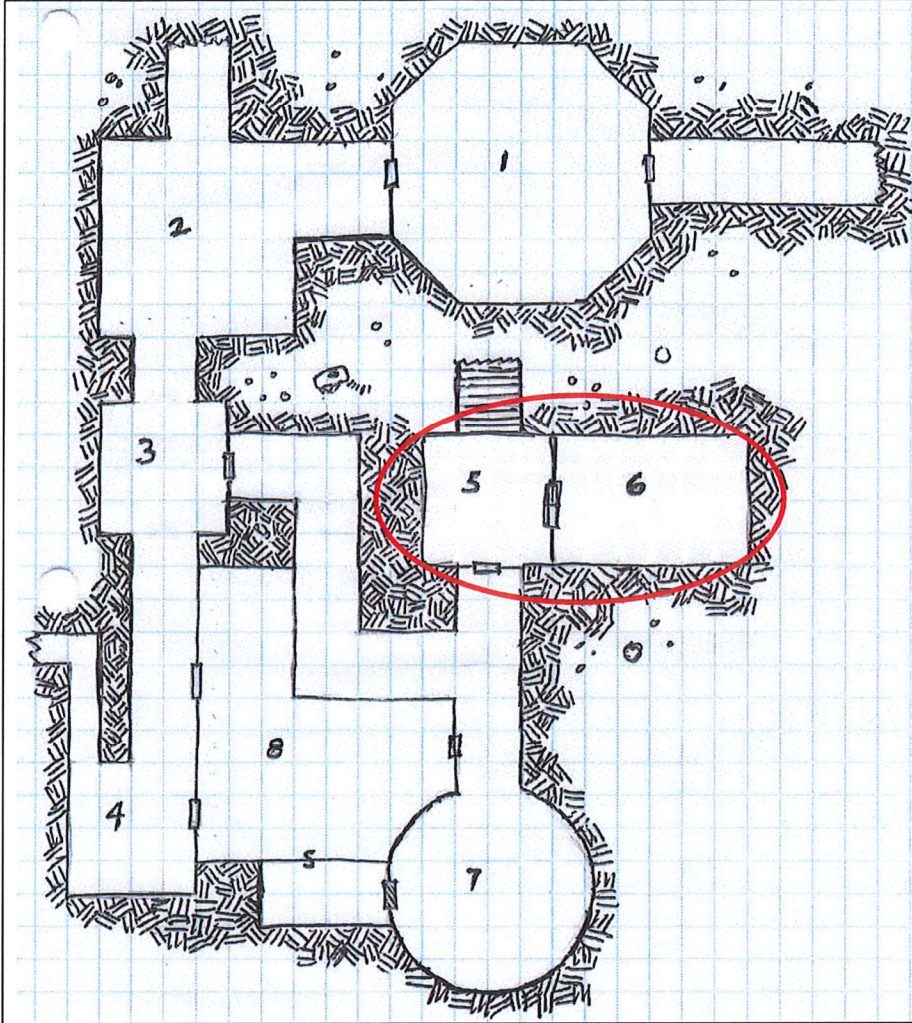


Problem Solving – NOBBY'S DUNGEON Set

(Area, Circumference, Perimeter)

<http://www.learnersgrid.com>



Nobby's Dungeon Set [1] Dungeon Rooms

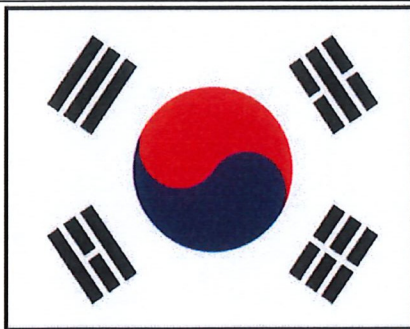
This is part of a map of the dungeons beneath the castle of Nobby the Baddie, a fifteenth century noble from what is now Helvetia.

Look carefully at rooms numbered 5 and 6. Room #6 is a treasure room. Room #5 is the treasure room's antechamber.

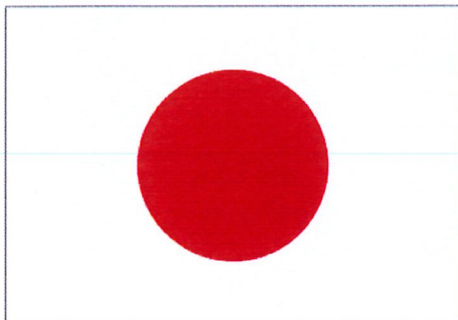
The length of the side of each square on the map represents 3.1 metres.

- Give the total area of rooms 5 and 6. (Round to 1 d.p.)

[A]



[B]



Nobby's Dungeon Set [2] Flags

Look at the two national flags to the left. Flag [A] is the South Korean national flag; flag [B] is the Japanese national flag.

Flag [A] is 2.4 m long and 1.6 m wide. The centre circle of flag [A] has a diameter of 0.84 m.

Flag [B] is 2.7 m long and 1.6 m wide. The centre circle of flag [B] has a diameter of 1.2 m.

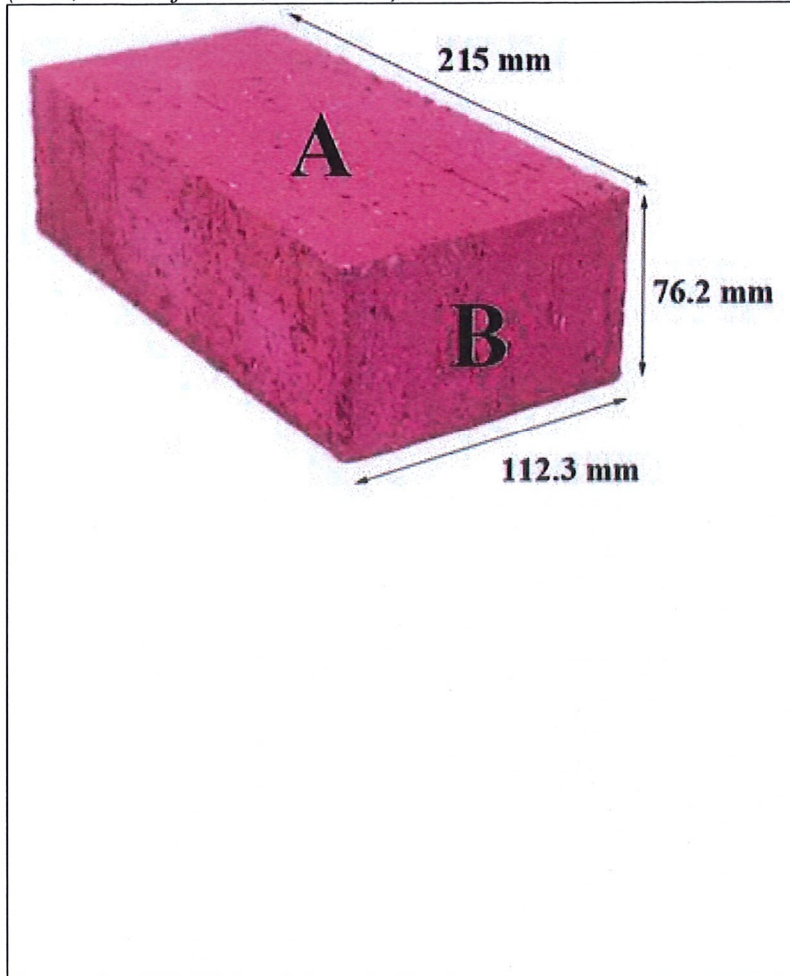
Imagine we remove the circles from each flag.

- a) Which flag now has the greatest area – and give that area (round to 1 d.p.)?
- b) Give the area of the other flag (round to 1 d.p.).

Problem Solving – NOBBY'S DUNGEON Set

(Area, Circumference, Perimeter)

<http://www.learnersgrid.com>



Nobby's Dungeon Set [3] Weferniti's Brick

To the left, you can see a lovely brick.

It is a brick that was recovered from the tomb of the pharaoh, Weferniti. It is said to be cursed.

- Give the area of side A (round to 1 d.p.):

- Give the area of side B (round to 1 d.p.):



Nobby's Dungeon Set [4] Cool Kite!

To the left, you can see a kite with a cool smiley face on it. This kite took 3 hours to construct, and it is made from bamboo and shopping bag plastic.

Anyway... moving on...

At its widest point, this kite is 74.8 cm wide.

- Use the measurements given to calculate the area of this kite. (Round your final answer to 1 d.p.)

Problem Solving – NOBBY'S DUNGEON Set

(Area, Circumference, Perimeter)

<http://www.learnersgrid.com>

Hotel Dance Floor

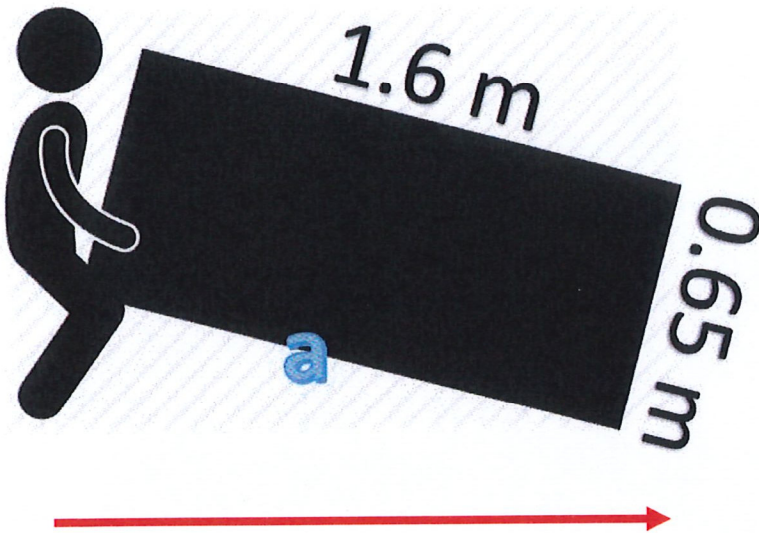


Nobby's Dungeon Set [5] Round the Outside

A lounge in a hotel is rectangular in shape and measures 35.8m by 22.1m.

In the centre of the floor, a large rectangular area measuring 8.6m by 6.1m has been tiled for some funky dancing. The rest of the floor is carpeted.

- Calculate the area of the carpet (round to 1 d.p.).



Nobby's Dungeon Set [6] Big Box

Johnny Kelsopp is levering this large box end over end in a straight line in the direction indicated in the diagram.

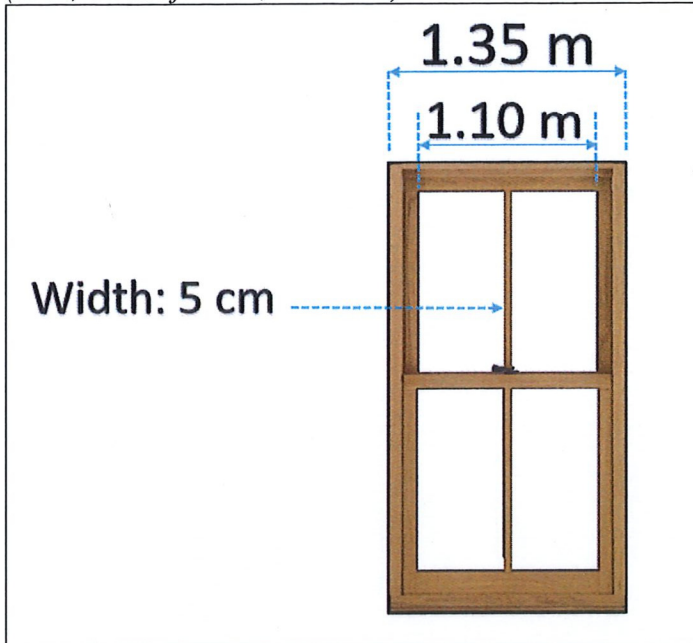
Imagine Johnny flips the box as indicated until face "a" of the box is facing upwards.

- Once face "a" is on top (i.e. facing upwards), how far has the box travelled? (Round to 1 d.p.)

Problem Solving – NOBBY'S DUNGEON Set

(Area, Circumference, Perimeter)

<http://www.learnersgrid.com>

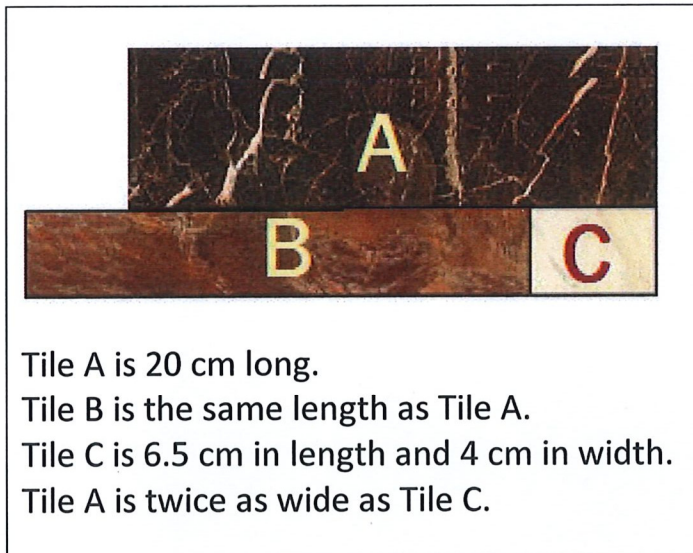


Nobby's Dungeon Set [7] Window Pains

Fasseema Dobbs is going to have the window casement to the left installed in her house.

The total area of one window pane is 0.756 m^2 .

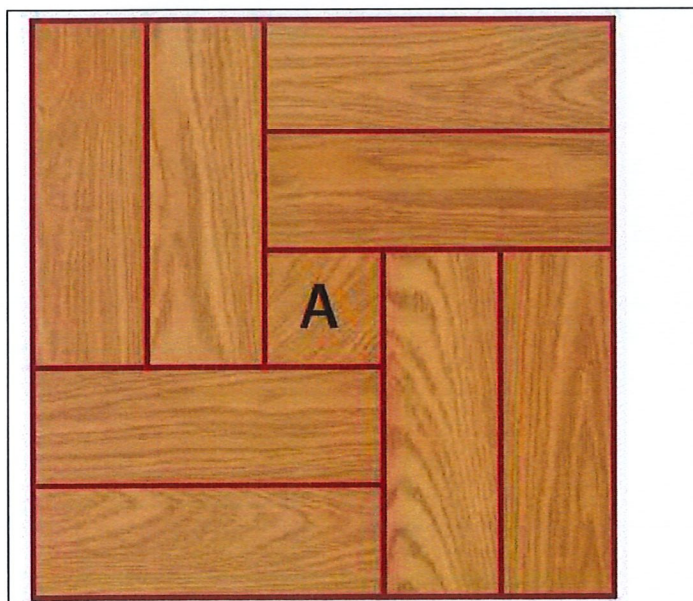
- What is the total area of all four of the window panes in this window casement? (round to 3 d.p.).



Tile A is 20 cm long.
Tile B is the same length as Tile A.
Tile C is 6.5 cm in length and 4 cm in width.
Tile A is twice as wide as Tile C.

Nobby's Dungeon Set [8] Around the Tiles

- Calculate the perimeter of the all the tiles arranged as shown to the left. (Round to 1 d.p.)



Nobby's Dungeon Set [9] Flooring Panels

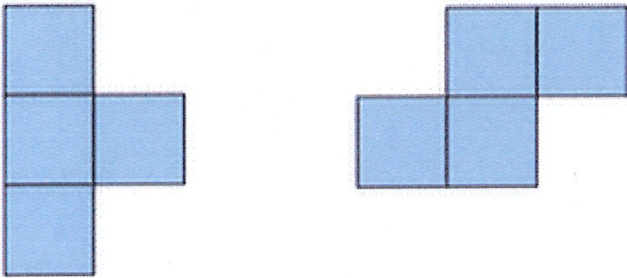
To the left, you can see 9 flooring panels. 8 of the panels are exactly the same size, while the middle panel (labelled "A") is smaller. It is a square. One side of the square panel measures 12.6 cm.

- Give the area of all 10 panels as arranged to the left. (round to 1 d.p.).

Problem Solving – NOBBY’S DUNGEON Set

(Area, Circumference, Perimeter)

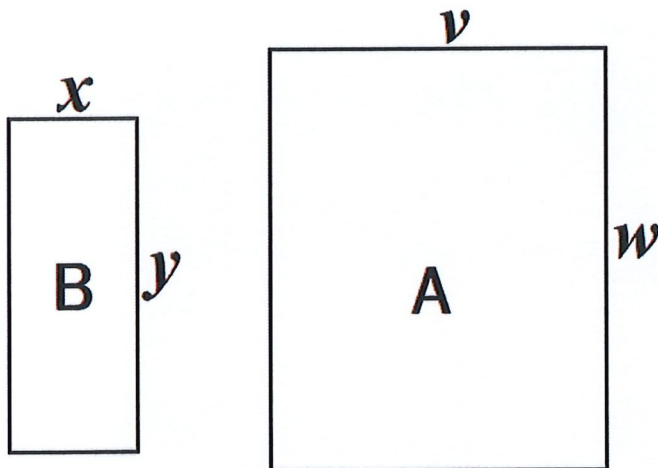
<http://www.learnersgrid.com>



To the left are 2 tiles, each made up of 4 squares.
The area of each tile is 4 square units.

- In the space to the right, show (draw) how you could join these two tiles together (no cutting, folding or overlapping – or any physical alterations whatsoever, apart from moving) to create a shape with a perimeter of 14 units.

Nobby's Dungeon Set **[10] Together As One**



Nobby's Dungeon Set **[11] Two to One**

The area of rectangle “A”, to the left, is 96 cm^2 .
The length of each side is even, and the length of each side is a multiple of 4.

If I rotate rectangle “B” 90 degrees clockwise, and then add it to the top of rectangle “B”, we will have a longer, single rectangle.

The area of this new rectangle would be 112 cm^2 .

- Give the lengths of each side: v, w, x, y.

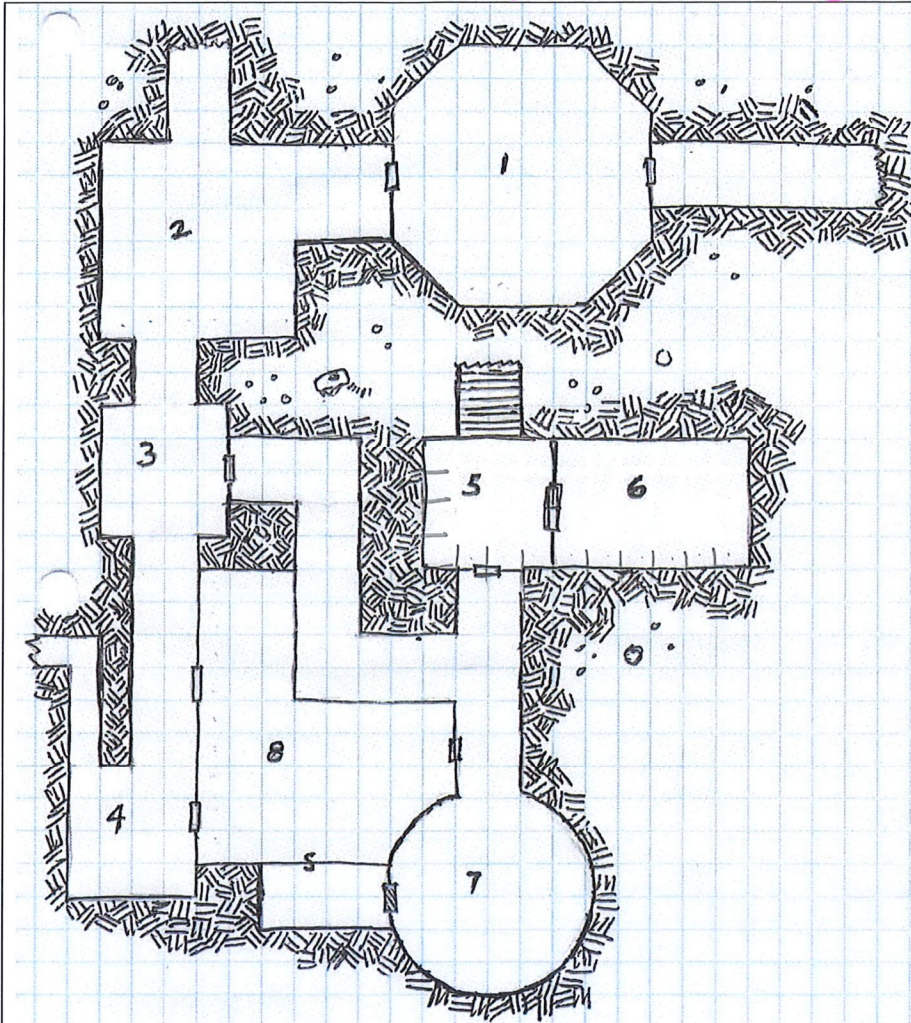
➤ $x =$

➤ $y =$

➤ $v =$

➤ $w =$

ANSWERS



Nobby's Dungeon Set [1] Dungeon Rooms

This is part of a map of the dungeons beneath the castle of Nobby the Baddie, a fifteenth century noble from what is now Helvetia.

Look carefully at rooms numbered 5 and 6. Room #6 is a treasure room. Room #5 is the treasure room's antechamber.

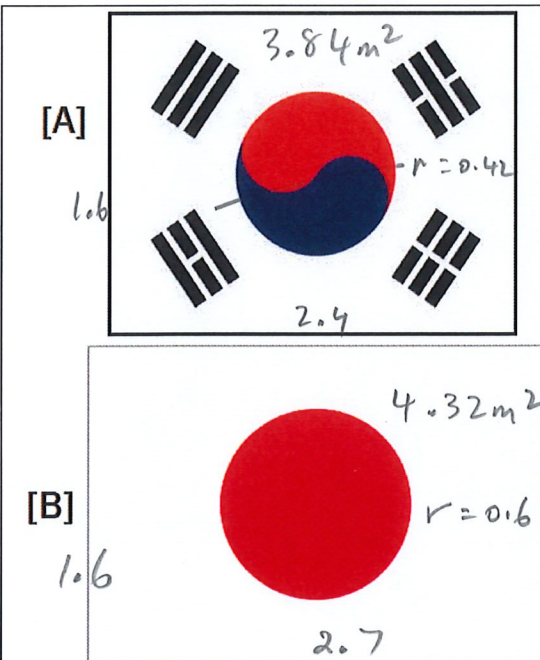
Each square on the map represents 3.1 metres.

$$10 \times 4$$

➤ Give the area of this room. (Round to 1 d.p.)

$$31 \times 12.4$$

$$384.4 \text{ m}^2$$



Nobby's Dungeon Set [2] Flags

Look at the two national flags to the left.

Flag [A] is the South Korean national flag; flag [B] is the Japanese national flag.

Flag [A] is 2.4 m long and 1.6 m wide. The centre circle of flag [A] has a diameter of 0.84 m. 3.2858 m^2

Flag [B] is 2.7 m long and 1.6 m wide. The centre circle of flag [B] has a diameter of 1.2 m. 3.1890 m^2

Imagine we remove the circles from each flag.

a) Which flag now has the greatest area – and give that area (round to 1 d.p.)? Flag A = Sth Korea

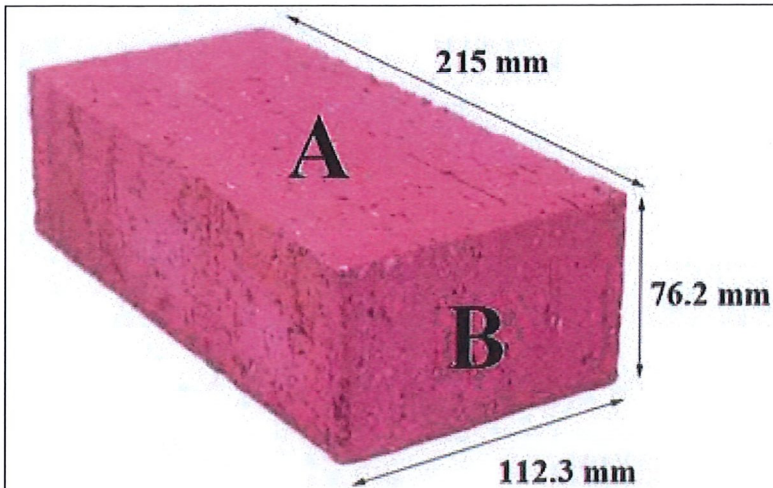
$$3.3 \text{ m}^2$$

b) Give the area of the other flag (round to 1 d.p.).

$$\text{Flag B} = \text{Japan}$$

$$3.2 \text{ m}^2$$

ANSWERS



Nobby's Dungeon Set [3] Weferniti's Brick

To the left, you can see a lovely brick.

It is a brick that was recovered from the tomb of the pharaoh, Weferniti. It is said to be cursed.

- Give the area of side A (round to 1 d.p.):

$$215 \times 112.3$$

$$24,144.5 \text{ mm}^2$$

- Give the area of side B (round to 1 d.p.):

$$112.3 \times 76.2$$

$$8,557.3 \text{ mm}^2$$



Nobby's Dungeon Set [4] Cool Kite!

To the left, you can see a kite with a cool smiley face on it. This kite took 3 hours to construct, and it is made from bamboo and shopping bag plastic.

Anyway... moving on...

At its widest point, this kite is 74.8 cm wide.

- Use the measurements given to calculate the area of this kite. (Round your final answer to 1 d.p.)

$$\frac{25.3 \times 74.8}{2} + \frac{74.8 \times 92}{2}$$

$$946.22 + 3440.8$$

$$4,387.0 \text{ cm}^2$$

ANSWERS

Hotel Dance Floor



Nobby's Dungeon Set [5] Round the Outside

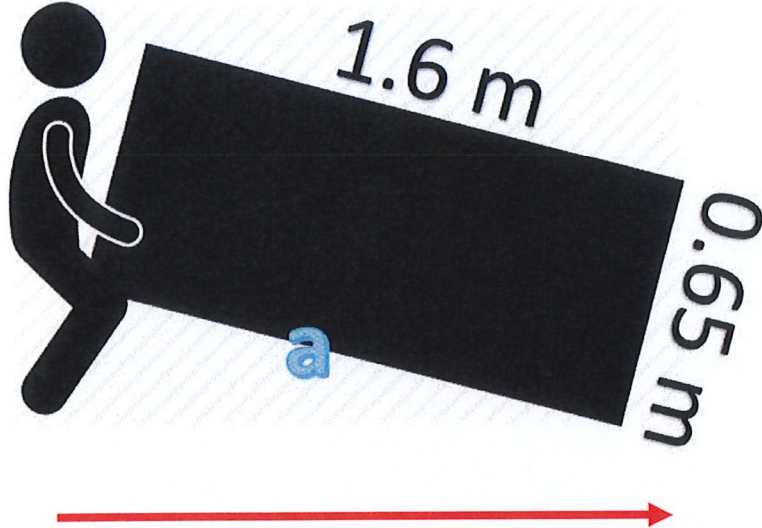
A lounge in a hotel is rectangular in shape and measures 35.8m by 22.1m. 791.18m^2

In the centre of the floor, a large rectangular area measuring 8.6m by 6.1m has been tiled for some funky dancing. The rest of the floor is carpeted. 52.46

- Calculate the area of the carpet (round to 1 d.p.).

$$791.18 - 52.46$$

$$738.7\text{m}^2$$



Nobby's Dungeon Set [6] Big Box

Johnny Kelsopp is levering this large box end over end in a straight line in the direction indicated in the diagram.

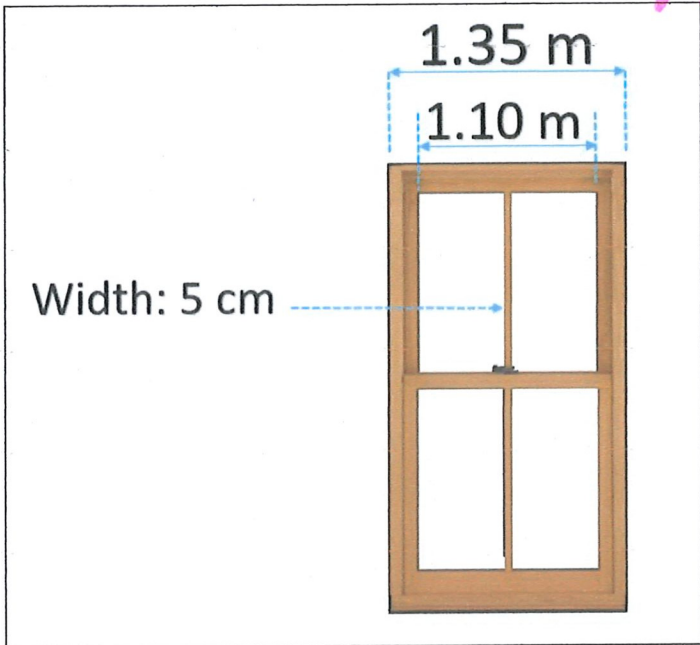
Imagine Johnny flips the box as indicated until face "a" of the box is facing upwards.

- Once face "a" is on top (i.e. facing upwards), how far has the box travelled? (Round to 1 d.p.)

$$\begin{array}{r} 0.65 \\ + 1.6 \\ \hline \end{array}$$

$$2.25\text{m}$$

ANSWERS



Nobby's Dungeon Set [7] Window Pains

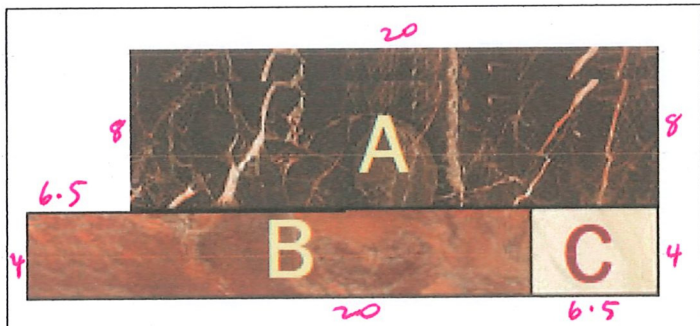
Fasseema Dobbs is going to have the window casement to the left installed in her house.

The total area of one window pane is 0.756 m^2 .

- What is the total area of all four of the window panes in this window casement? (round to 3 d.p.)

$$0.756 \times 4$$

$$3.024 \text{ m}^2$$



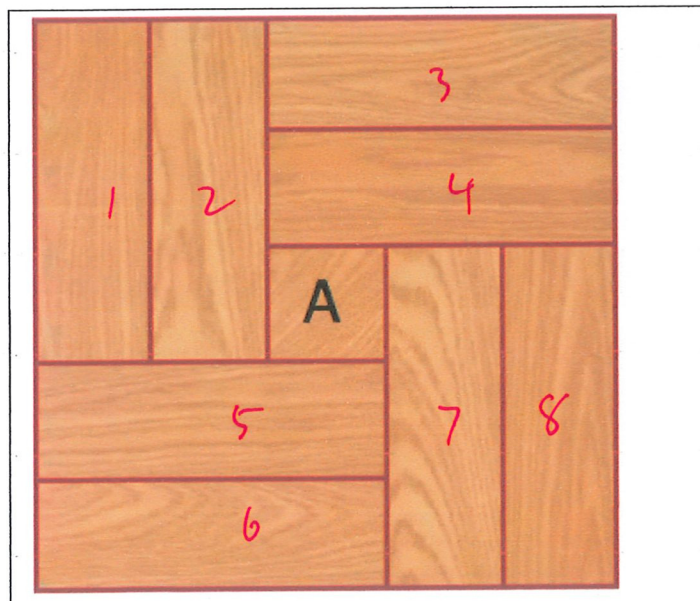
Nobby's Dungeon Set [8] Around the Tiles

- Calculate the perimeter of the all the tiles arranged as shown to the left. (Round to 1 d.p.)

$$\begin{array}{r} 32 \\ 26.5 \\ 18.5 \\ \hline 77.0 \end{array}$$

$$77 \text{ cm}$$

Tile A is 20 cm long.
Tile B is the same length as Tile A.
Tile C is 6.5 cm in length and 4 cm in width.
Tile A is twice as wide as Tile C.



Nobby's Dungeon Set [9] Flooring Panels

To the left, you can see 9 flooring panels. 8 of the panels are exactly the same size, while the middle panel (labelled "A") is smaller. It is a square. One side of the square panel measures 12.6 cm.

$$A = 158.76 \times 3$$

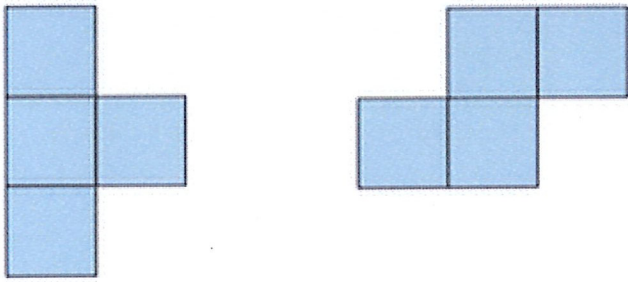
- Give the area of all 10 panels as arranged to the left. (round to 1 d.p.)

$$476.28 \times 8$$

$$3,810.24$$

$$3,969 \text{ cm}^2$$

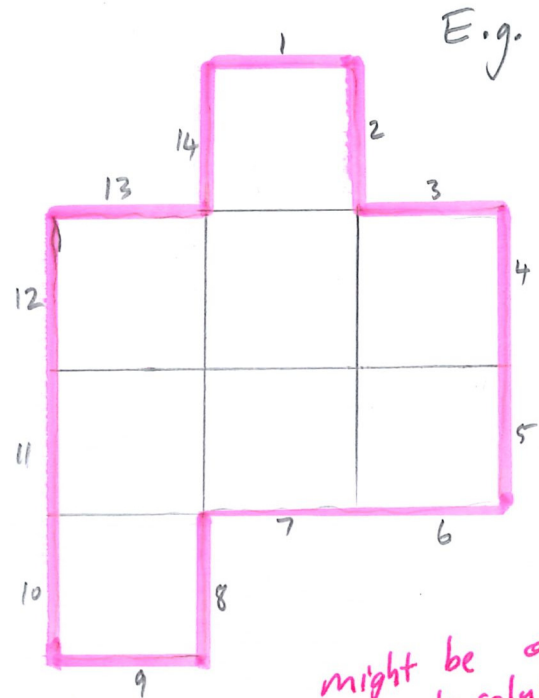
ANSWERS



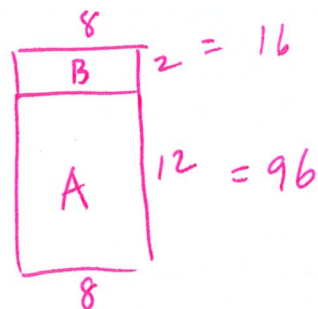
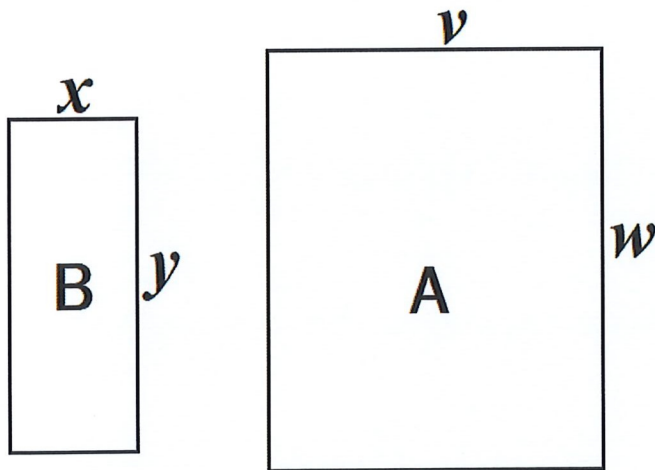
To the left are 2 tiles, each made up of 4 squares. The area of each tile is 4 square units.

- Show (draw) how you could join these two tiles together (no cutting, folding or overlapping – or any physical alterations whatsoever, apart from moving) to create a shape with a perimeter of 14 units.

Nobby's Dungeon Set [10] Together As One



might be other correct solutions.



Nobby's Dungeon Set [11] Two to One

The area of rectangle "A", to the left, is 96 cm^2 . The length of each side is even, and the length of each side is a multiple of 4.

If I rotate rectangle "B" 90 degrees clockwise, and then add it to the top of rectangle "B", we will have a longer, single rectangle.

The area of this new rectangle would be 112 cm^2 .

- Give the lengths of each side: v , w , x , y .

- $x = 2 \text{ cm}$
- $y = 8 \text{ cm}$
- $v = 8 \text{ cm}$
- $w = 12 \text{ cm}$