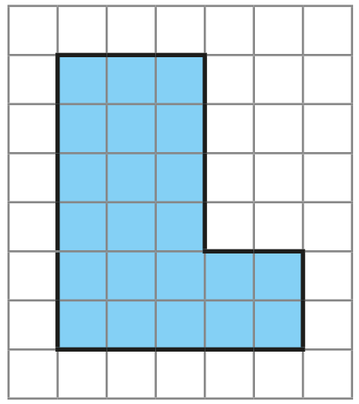
Perimeter of rectilinear shapes

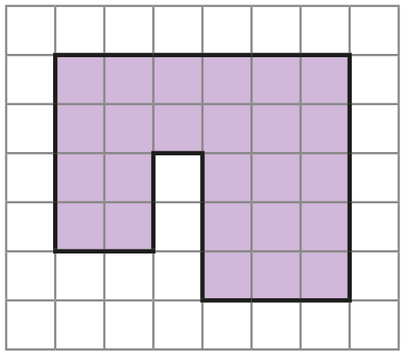
1 The length of each square on the grid is 1 cm.

Work out the perimeter of the shapes.

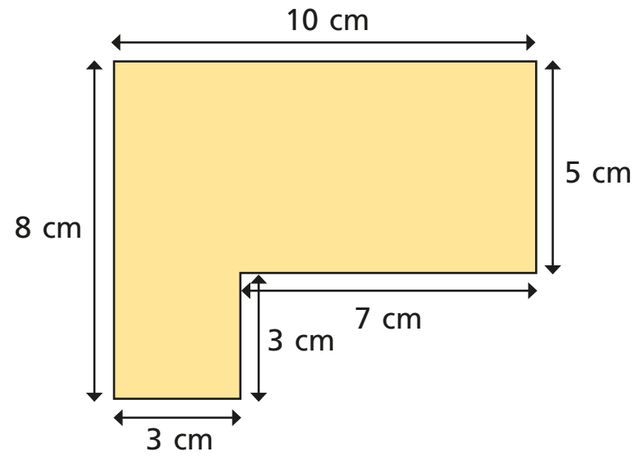
a)



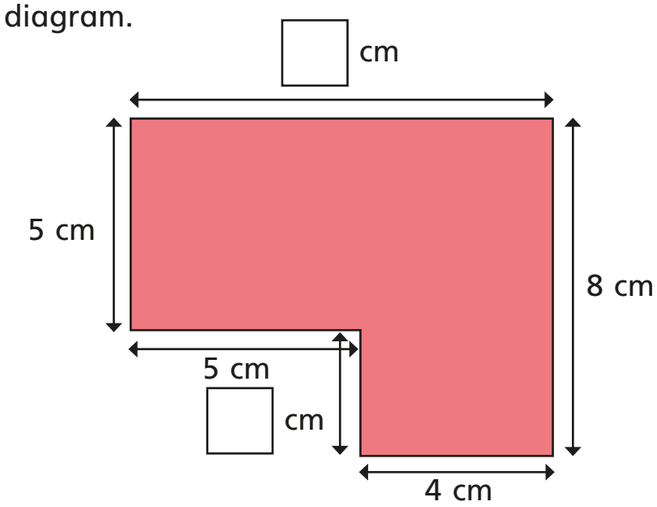
b)



2 Work out the perimeter of the shape.



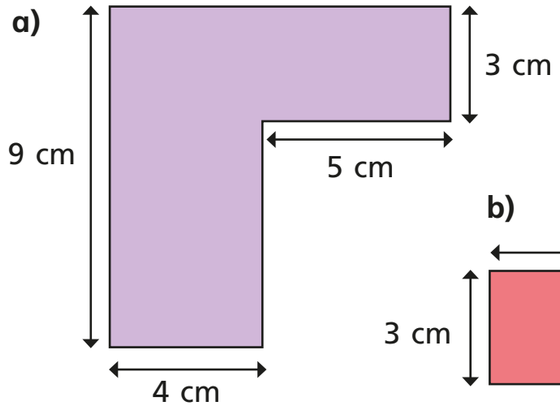
3 **a)** Work out the missing lengths and label them on the diagram.



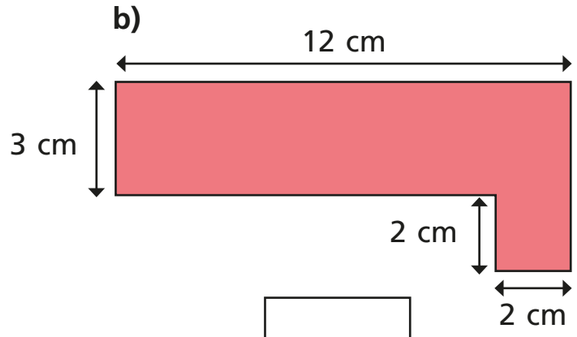
b) What is the perimeter of the shape?

4 Work out the perimeter of each shape.

a)

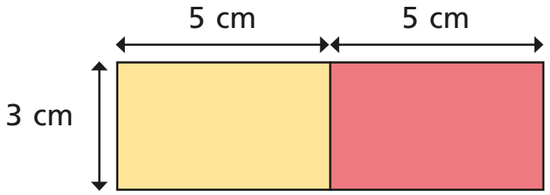


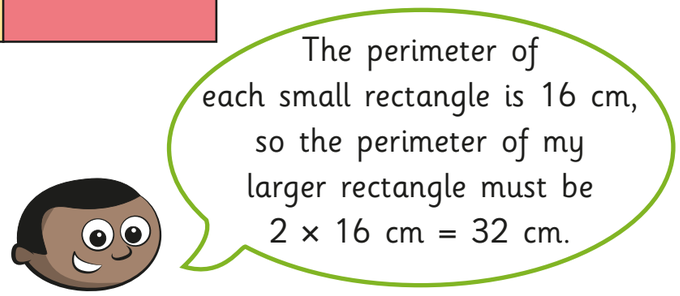
b)



© White Rose Maths 2019

5 Mo puts two 5 cm by 3 cm rectangles next to each other.



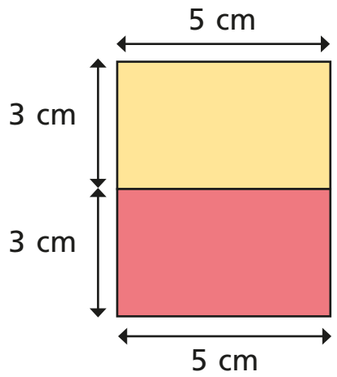


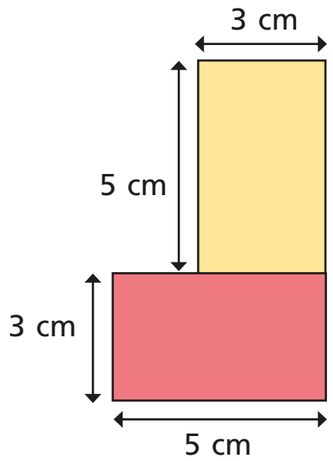
a) Is Mo correct? _____

Work out the perimeter of the larger rectangle to check your answer.

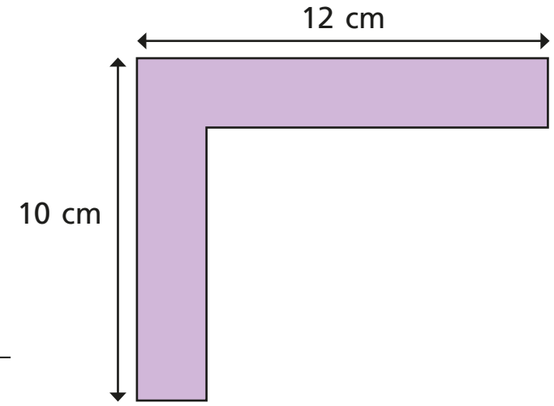
b) Mo puts the rectangles together in different ways.

Work out the perimeter of each large shape.





6 Dani thinks there isn't enough information to work out the perimeter of the shape.

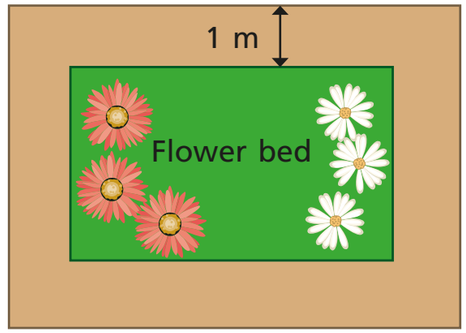


Is Dani correct? _____

Explain your answer.

7 A rectangular flower bed is 5 m long and 3 m wide.

The path around the flower bed is 1 m wide.



a) What is the perimeter of the flower bed?

b) What is the perimeter of the outside of the path?

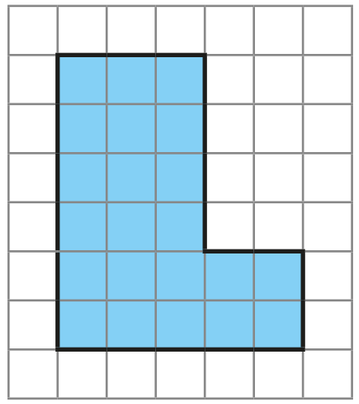
© White Rose Maths 2019

Perimeter of rectilinear shapes

1 The length of each square on the grid is 1 cm.

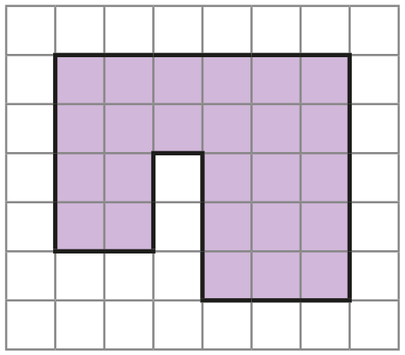
Work out the perimeter of the shapes.

a)



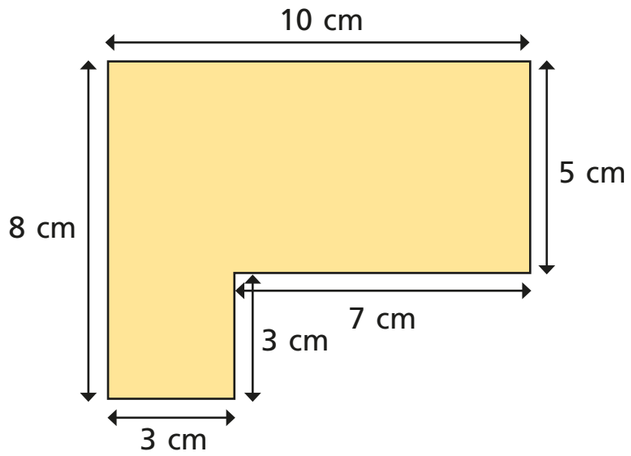
22cm

b)



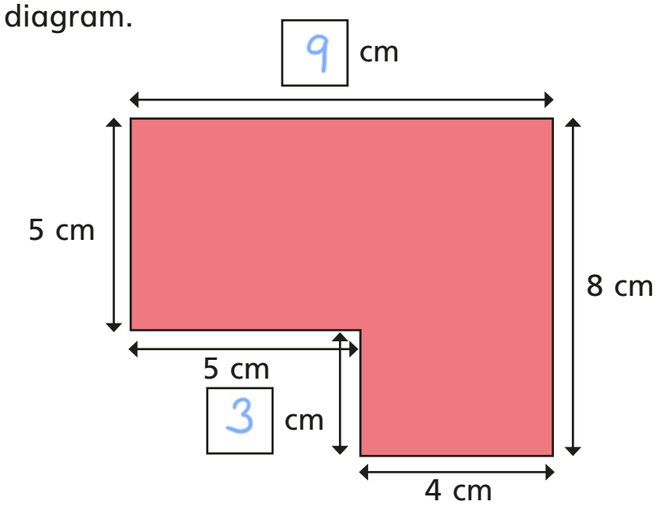
26cm

2 Work out the perimeter of the shape.



36 cm

3 **a)** Work out the missing lengths and label them on the diagram.

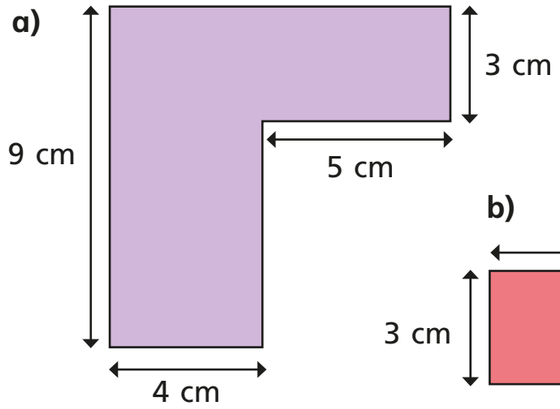


b) What is the perimeter of the shape?

34cm

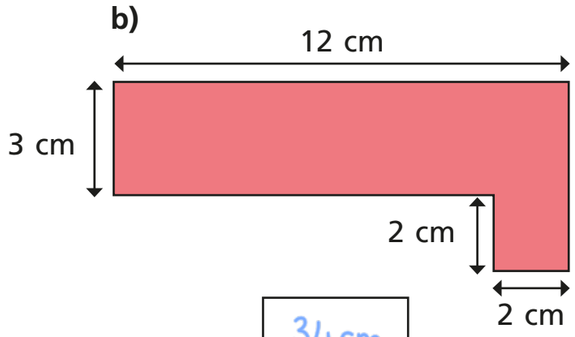
4 Work out the perimeter of each shape.

a)



36cm

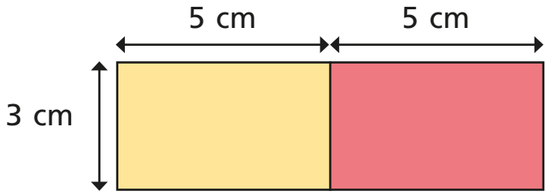
b)

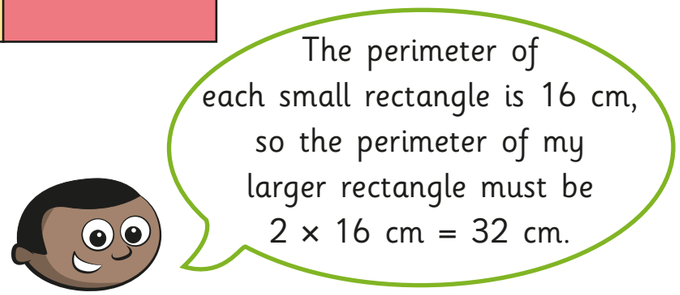


34cm

© White Rose Maths 2019

5 Mo puts two 5 cm by 3 cm rectangles next to each other.





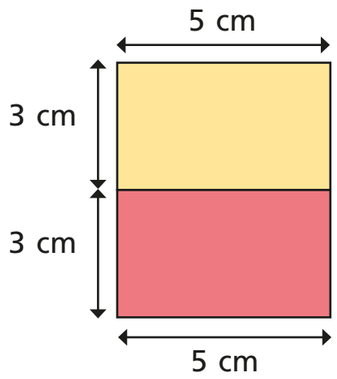
a) Is Mo correct? No

Work out the perimeter of the larger rectangle to check your answer.

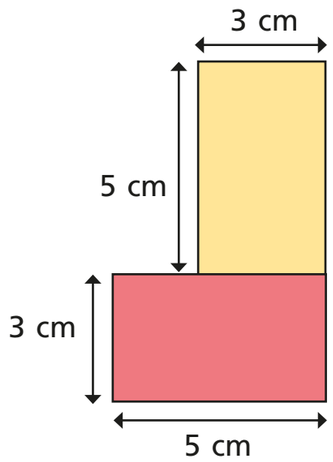
26 cm

b) Mo puts the rectangles together in different ways.

Work out the perimeter of each large shape.

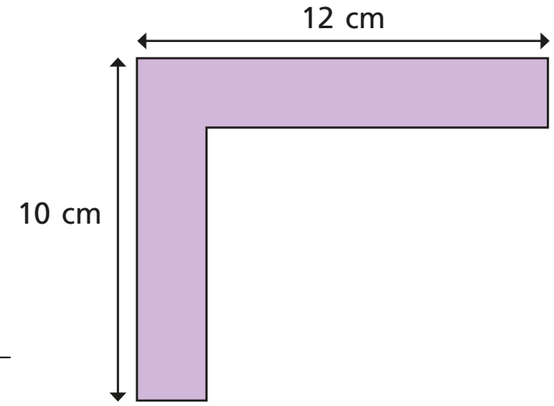


22 cm



26 cm

6 Dani thinks there isn't enough information to work out the perimeter of the shape.

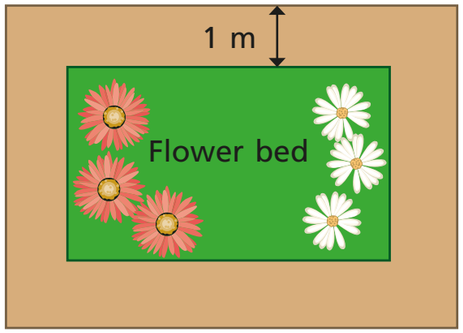


Is Dani correct? No

Explain your answer.

7 A rectangular flower bed is 5 m long and 3 m wide.

The path around the flower bed is 1 m wide.



a) What is the perimeter of the flower bed?

16 cm

b) What is the perimeter of the outside of the path?

24 cm

© White Rose Maths 2019

What is area?

1 **a)** Work with a partner.

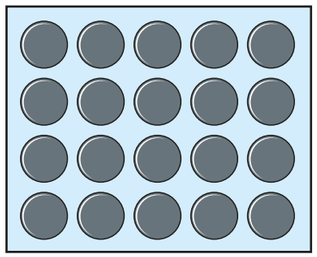
Use 4 sticky notes to make as many different rectilinear shapes as you can.

How many different shapes did you make? ☐

b) All of the shapes that you made have the same area.

Explain how you know that this is correct.

2 Amir covers a rectangle with some counters.



a) Amir thinks the area of the rectangle is exactly 20 counters.

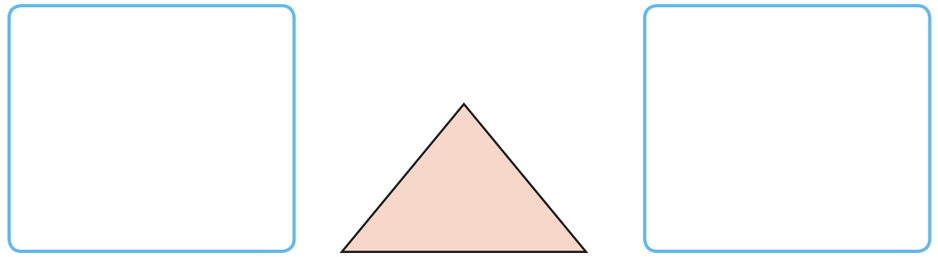
Is Amir correct? _____

b) Explain why counters are not the best way to measure area.

_____

_____

3 Eva draws this shape.

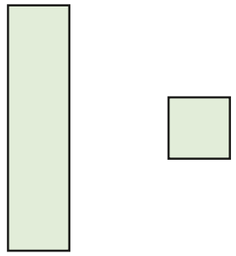


a) To the left, draw a triangle with a smaller area

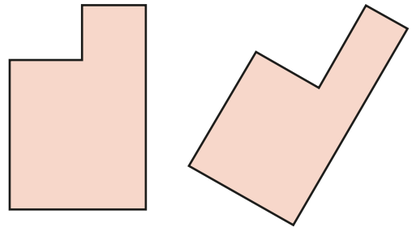
b) To the right, draw a triangle with a greater area.

4 For each pair of shapes, tick the shape with the greater area.

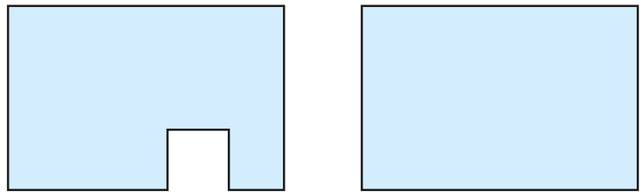
a)



c)



b)



© White Rose Maths 2019

5

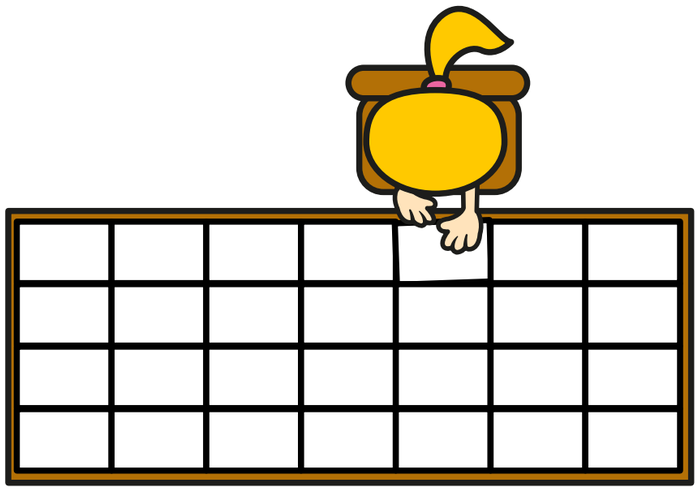
A longer object will always have a greater area than a shorter object.

Do you agree with Teddy? _____

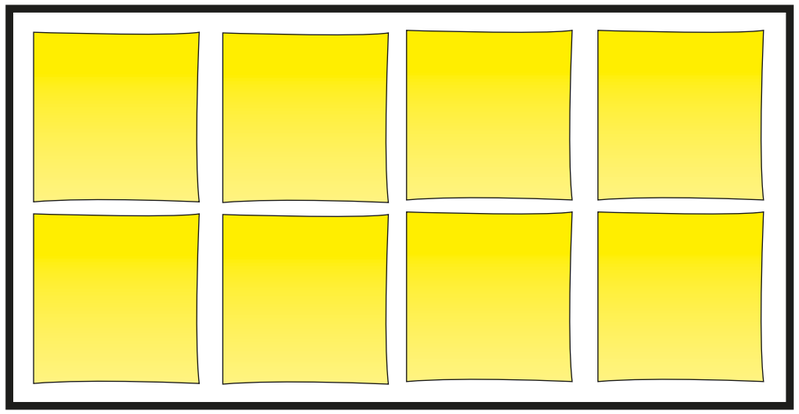
Draw a picture to support your answer.

6 Eva is measuring the area of the tabletop.

She has covered the table with exactly 28 sheets of paper.



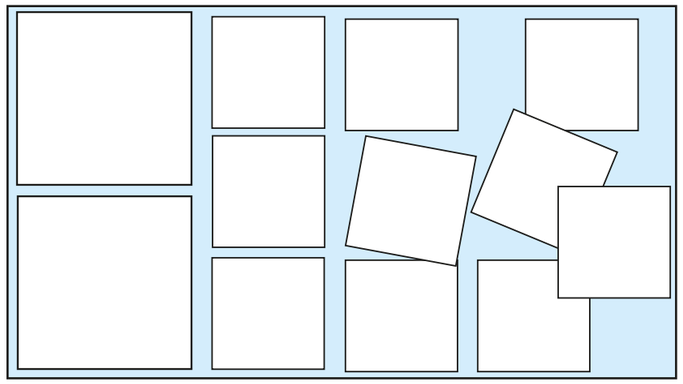
She covers one sheet of paper with sticky notes.



What is the area of the **tabletop** in sticky notes?

_____ sticky notes

7 Kim thinks the area of the rectangle is 12 squares.



Is Kim correct? _____

How do you know?

© White Rose Maths 2019

What is area?

1 **a)** Work with a partner.

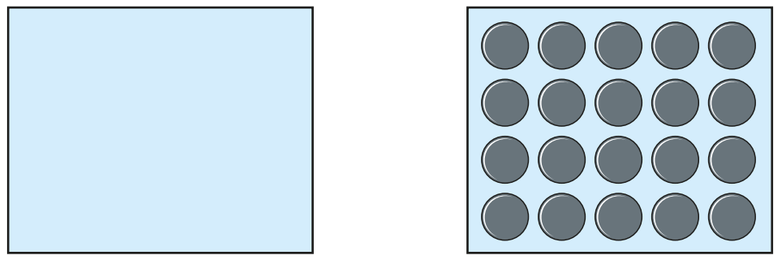
Use 4 sticky notes to make as many different rectilinear shapes as you can.

How many different shapes did you make? 5

b) All of the shapes that you made have the same area.

Explain how you know that this is correct.

2 Amir covers a rectangle with some counters.



a) Amir thinks the area of the rectangle is exactly 20 counters.

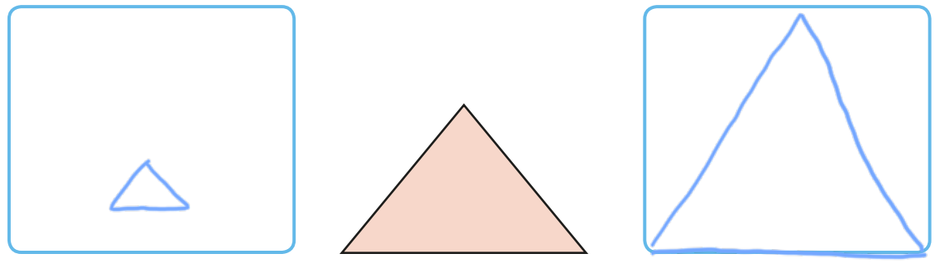
Is Amir correct? No

b) Explain why counters are not the best way to measure area.

They are round so don't fill the space.

3 Eva draws this shape.

E.g.

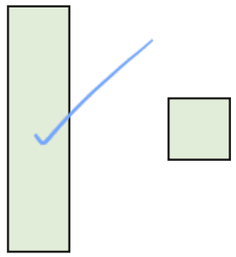


a) To the left, draw a triangle with a smaller area

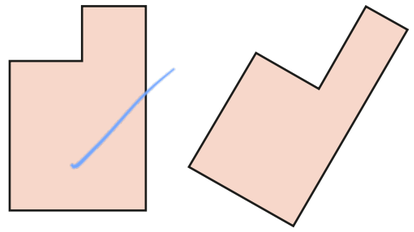
b) To the right, draw a triangle with a greater area.

4 For each pair of shapes, tick the shape with the greater area.

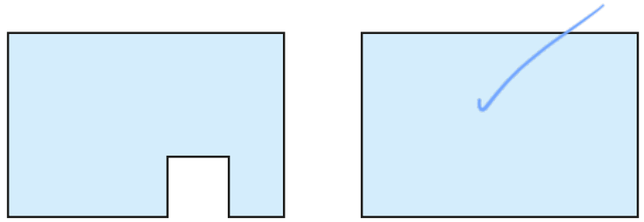
a)



c)



b)



© White Rose Maths 2019

5

A longer object will always have a greater area than a shorter object.

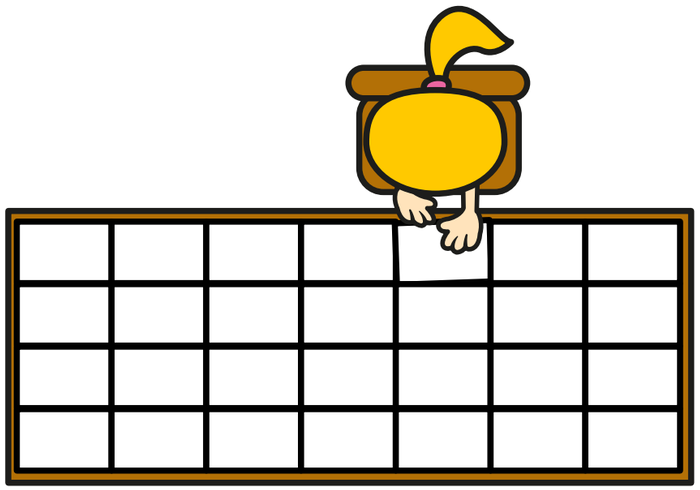
Do you agree with Teddy? No

Draw a picture to support your answer.

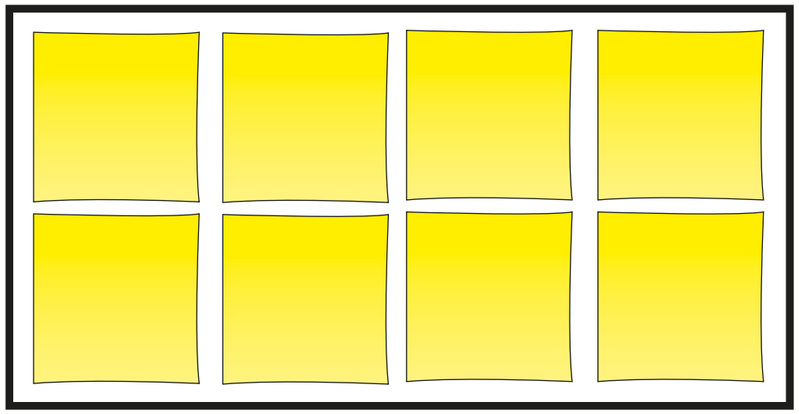
E.g.

6 Eva is measuring the area of the tabletop.

She has covered the table with exactly 28 sheets of paper.



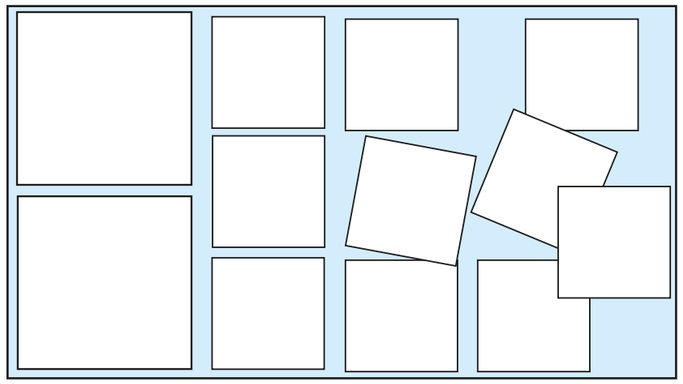
She covers one sheet of paper with sticky notes.



What is the area of the **tabletop** in sticky notes?

224 sticky notes

7 Kim thinks the area of the rectangle is 12 squares.



Is Kim correct? No

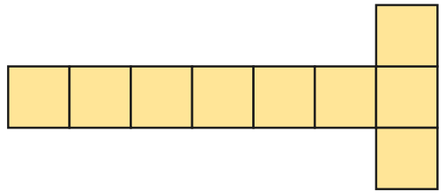
How do you know?

© White Rose Maths 2019

Counting squares

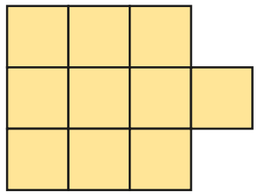
1 Count the squares in each shape to find the area.

A



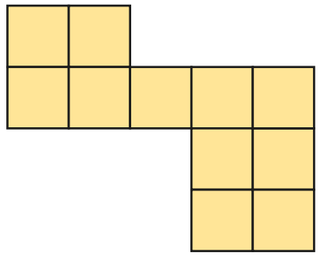
The area is ☐ squares.

B



The area is ☐ squares.

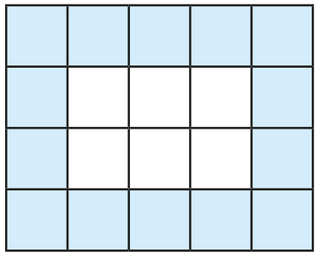
C



The area is ☐ squares.

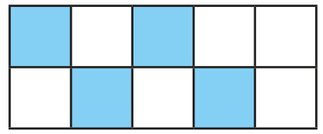
Which shape has the greatest area? _____

2 What is the area of the shaded part of the shape?



The area is ☐ squares.

3 Here is a kitchen tile.

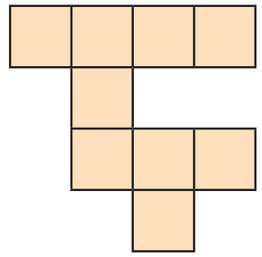


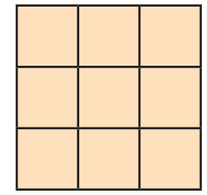
a) What area of the tile is blue? ☐ squares

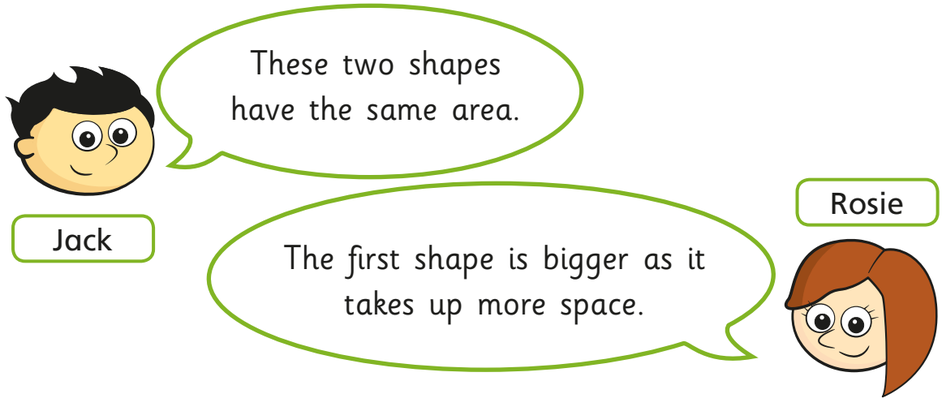
b) What area of the tile is white? ☐ squares

c) What is the total area of the tile? ☐ squares

4 These two shapes are made up of squares of the same size.







Who is correct? _____

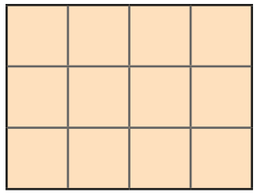
Explain how you know.

_____

_____

© White Rose Maths 2019

5 Here is a rectangle.

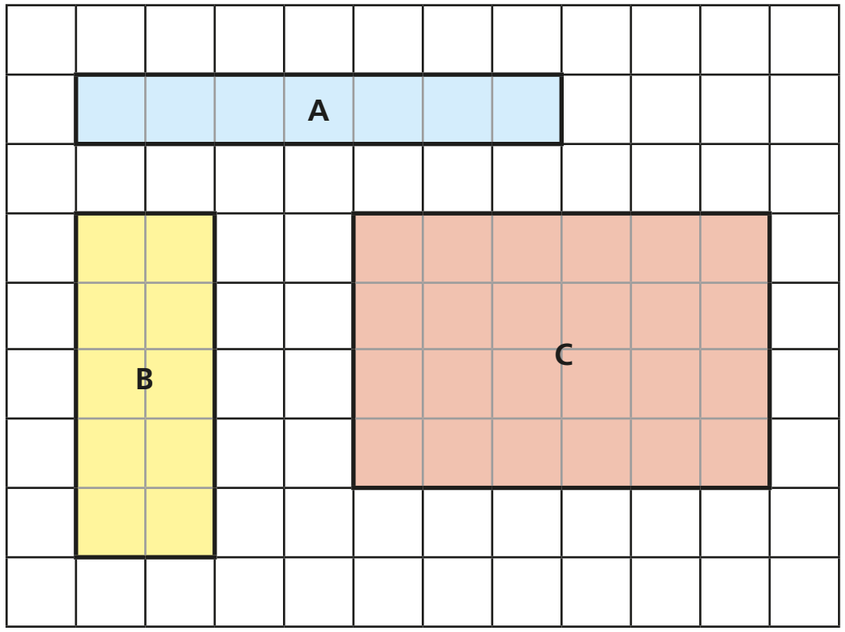


a) The rectangle has ☐ rows and ☐ columns.

b) What is the area of the rectangle? ☐ squares

c) How did you work out the area?

6 Find the area of each rectangle.

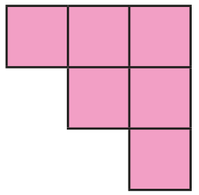


A = ☐ squares **B** = ☐ squares **C** = ☐ squares

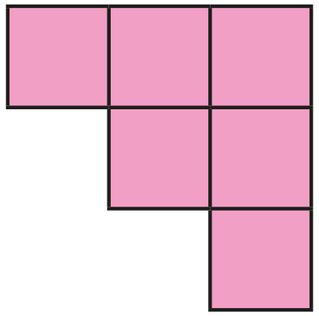
7 Nijah and Eva are making shapes.

They each use 6 squares.

Nijah's shape



Eva's shape



The area of Nijah's shape is equal to the area of Eva's shape.

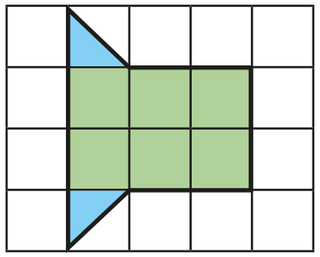
Is this true or false? _____

How do you know?

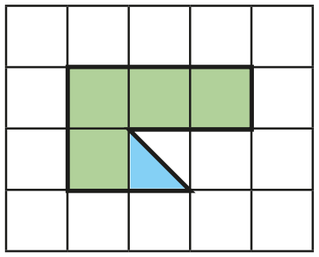
_____

_____

8 What is the area of each shape?



area = ☐ squares



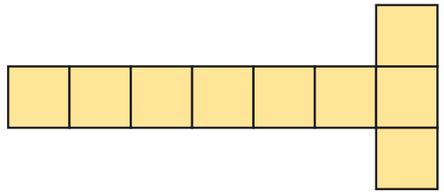
area = ☐ squares

© White Rose Maths 2019

Counting squares

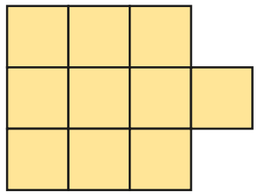
1 Count the squares in each shape to find the area.

A



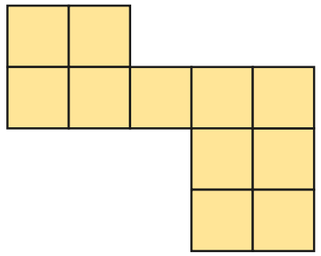
The area is 9 squares.

B



The area is 10 squares.

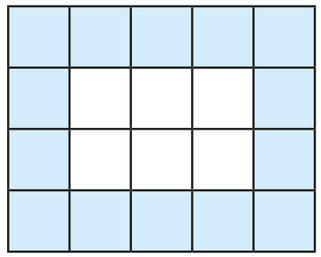
C



The area is 11 squares.

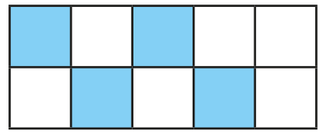
Which shape has the greatest area? C

2 What is the area of the shaded part of the shape?



The area is 14 squares.

3 Here is a kitchen tile.

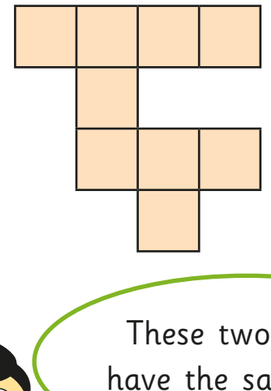


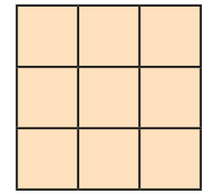
a) What area of the tile is blue? 4 squares

b) What area of the tile is white? 6 squares

c) What is the total area of the tile? 10 squares

4 These two shapes are made up of squares of the same size.



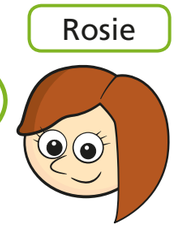


Jack

These two shapes have the same area.

Rosie

The first shape is bigger as it takes up more space.



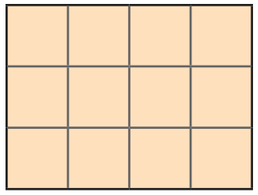
Who is correct? Jack

Explain how you know.

They both have an area of 9 squares.

© White Rose Maths 2019

5 Here is a rectangle.

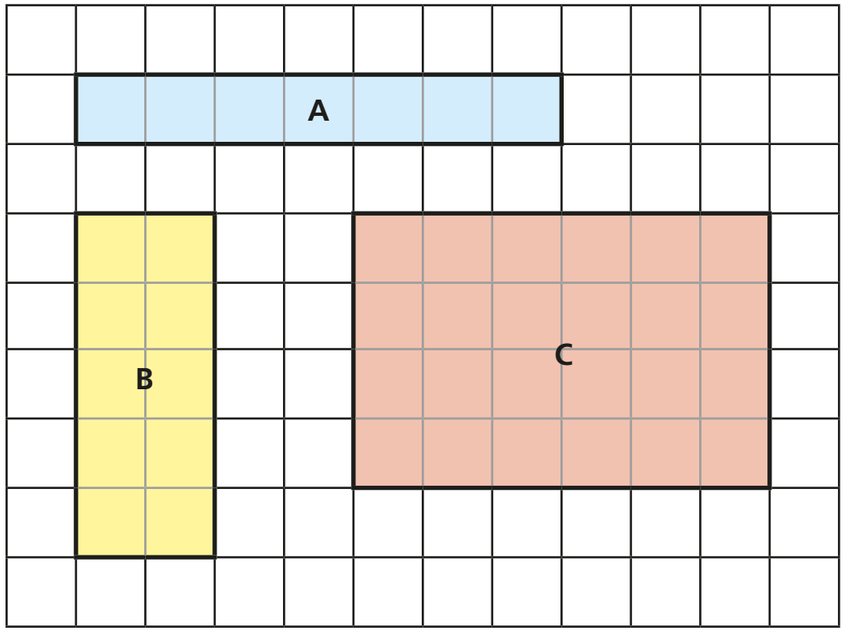


a) The rectangle has [3] rows and [4] columns.

b) What is the area of the rectangle? [12] squares

c) How did you work out the area?

6 Find the area of each rectangle.

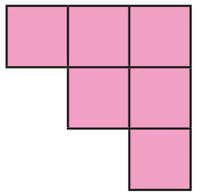


A = [7] squares **B** = [10] squares **C** = [24] squares

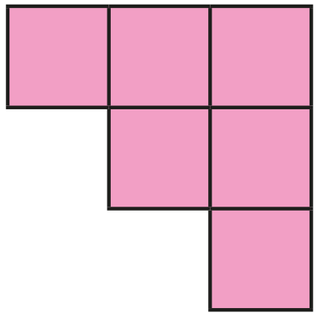
7 Nijah and Eva are making shapes.

They each use 6 squares.

Nijah's shape



Eva's shape



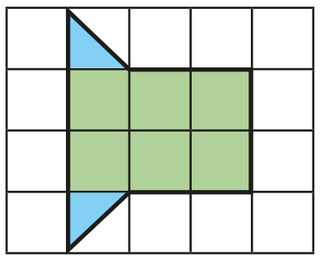
The area of Nijah's shape is equal to the area of Eva's shape.

Is this true or false? [False]

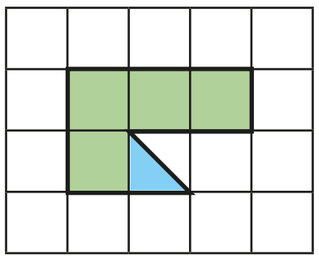
How do you know?

[They are not made using the same size shapes.]

8 What is the area of each shape?



area = [7] squares



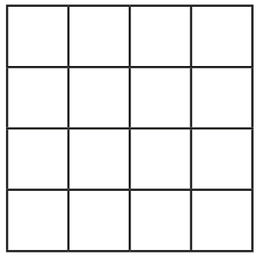
area = [4 ½] squares

© White Rose Maths 2019

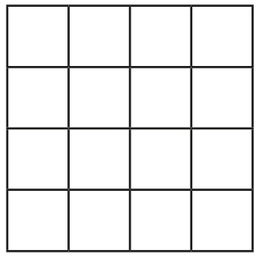
Making shapes

1 Draw a shape with the given area.

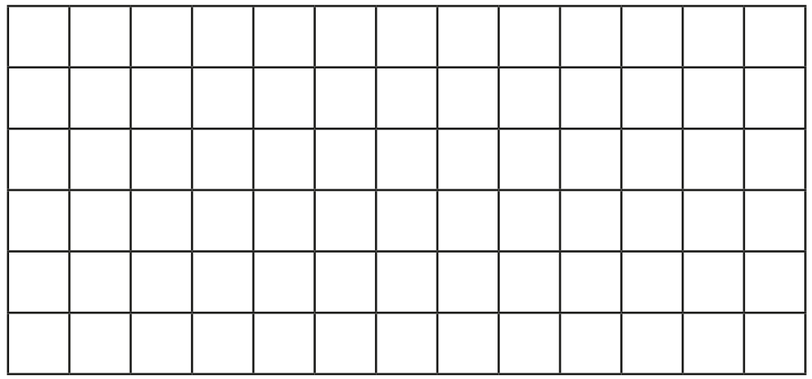
a) area = 7 squares



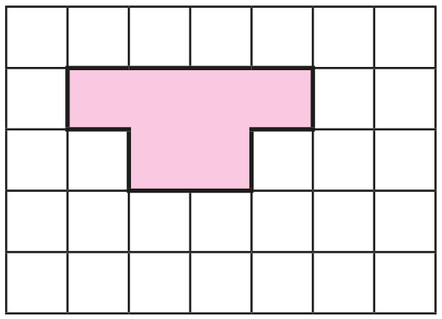
b) area = 13 squares



2 **a)** Draw two different shapes, each with an area of 8 squares.



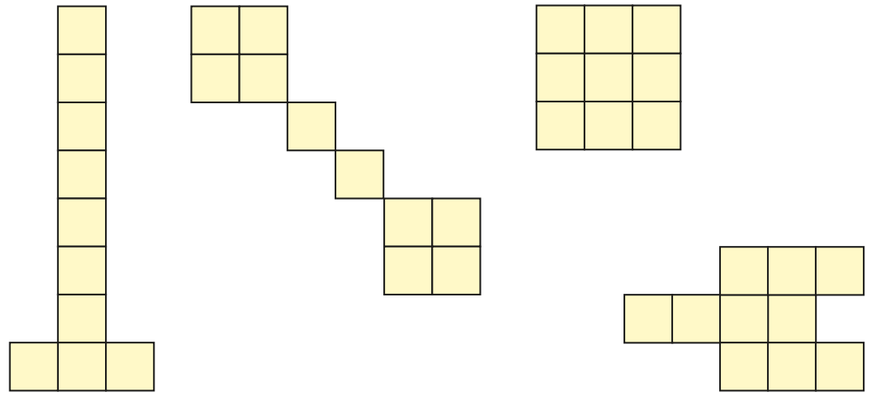
3 Shade more squares to make the area 11 squares.



4 Amir has created a shape.

My shape has an area of 10 squares and is rectilinear.

Tick the shapes that Amir could have made.



5

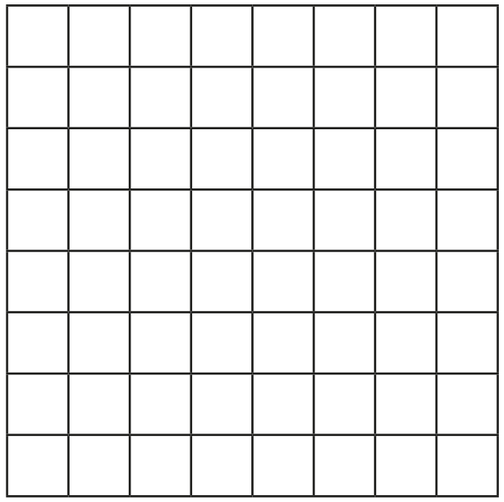
I cannot make a large square using an odd number of smaller squares.

Do you agree with Whitney? _____

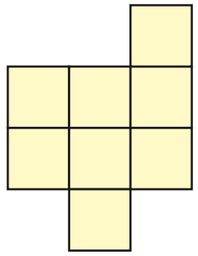
Draw a picture to support your answer.

© White Rose Maths 2019

6 Draw two different rectangles, each with an area of 12 squares.



7 **a)** Add squares to this shape to make it into a square.



b) What is the area of the square you have made?

☐ squares

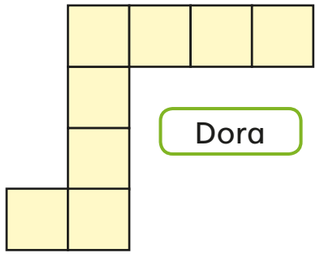
c) How could you make a larger square?

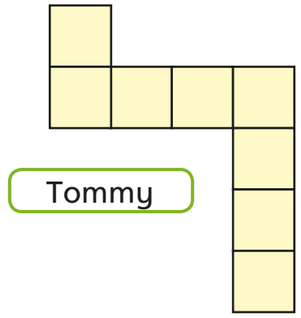
How many more squares do you need to add?

Show your working.

☐

8 Dora and Tommy have drawn rectilinear shapes.



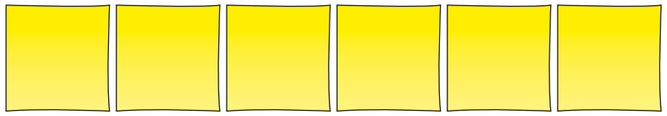


Tommy says he has made a different shape with the same area.

Do you agree with Tommy? _____

Explain your answer.

9 Use six square sticky notes or square shapes.



Make as many different rectilinear shapes with the squares as you can.

Draw some of your shapes.

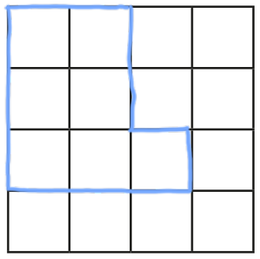
© White Rose Maths 2019

Making shapes

1 Draw a shape with the given area.

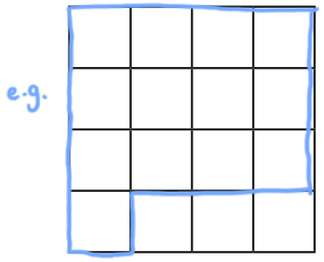
a) area = 7 squares

e.g.



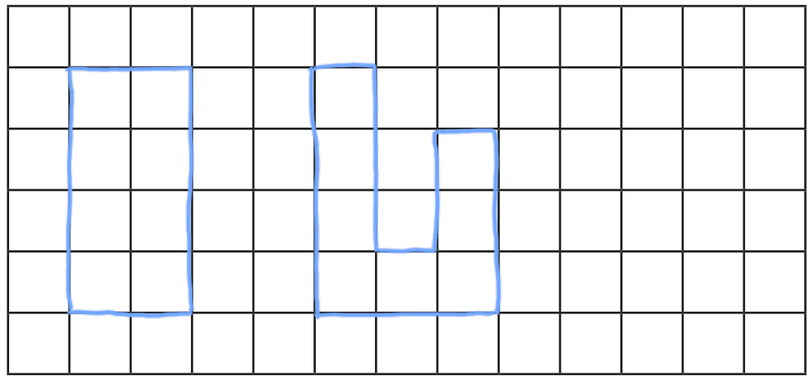
b) area = 13 squares

e.g.



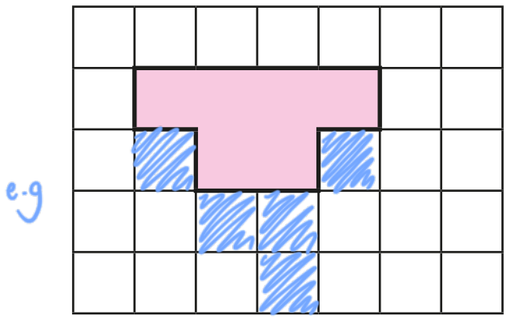
2 **a)** Draw two different shapes, each with an area of 8 squares.

e.g



3 Shade more squares to make the area 11 squares.

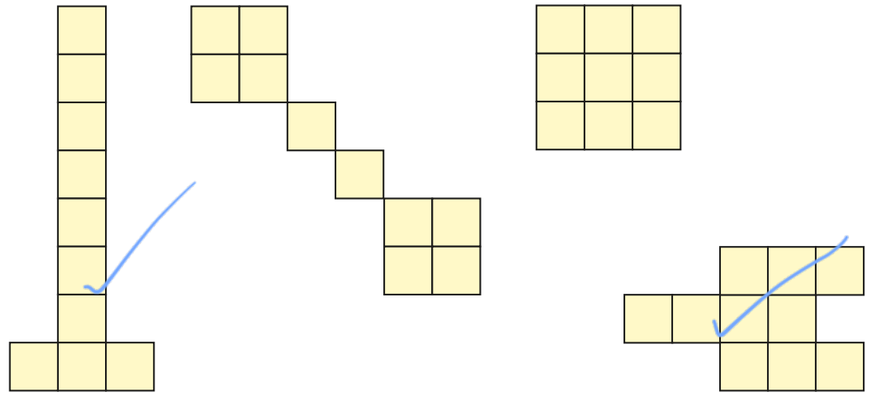
e.g



4 Amir has created a shape.

My shape has an area of 10 squares and is rectilinear.

Tick the shapes that Amir could have made.



5

I cannot make a large square using an odd number of smaller squares.

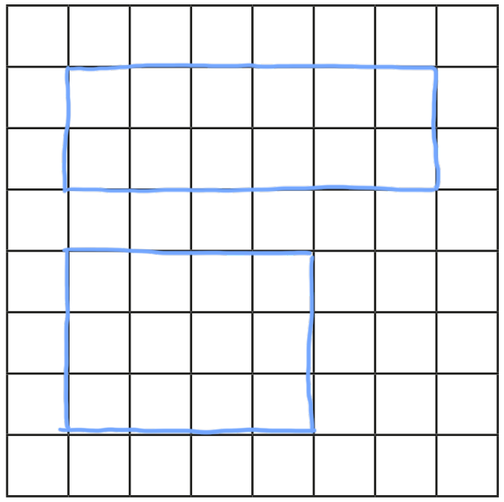
Do you agree with Whitney? No

Draw a picture to support your answer.

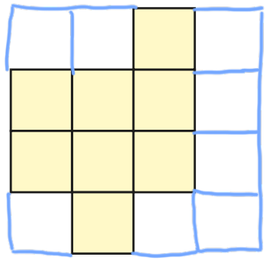
e.g

© White Rose Maths 2019

6 Draw two different rectangles, each with an area of 12 squares.



7 **a)** Add squares to this shape to make it into a square.



b) What is the area of the square you have made?

16 squares

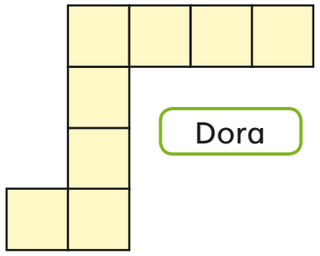
c) How could you make a larger square?

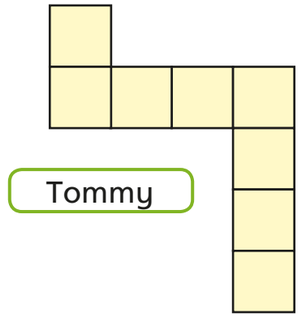
How many more squares do you need to add?

Show your working.

9

8 Dora and Tommy have drawn rectilinear shapes.



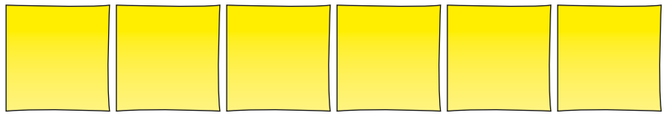


Tommy says he has made a different shape with the same area.

Do you agree with Tommy? NO

Explain your answer.

9 Use six square sticky notes or square shapes.



Make as many different rectilinear shapes with the squares as you can.

Draw some of your shapes.

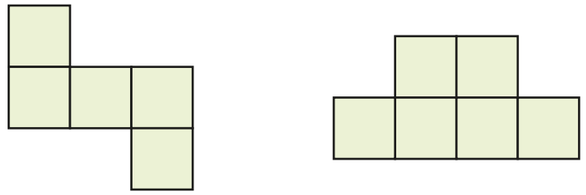
e.g.

Compare answers with a partner.

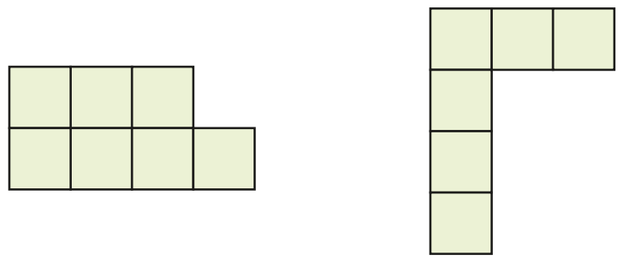
© White Rose Maths 2019

Comparing area

1 **a)** Tick the shape with the larger area.

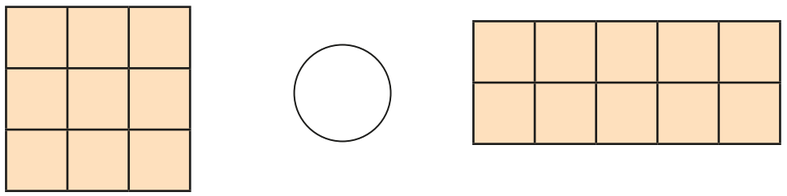


b) Tick the shape with the smaller area.

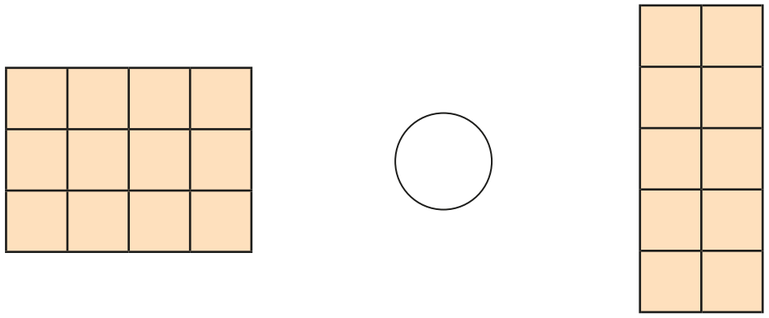


2 Write <, > or = to compare the area of the shapes.

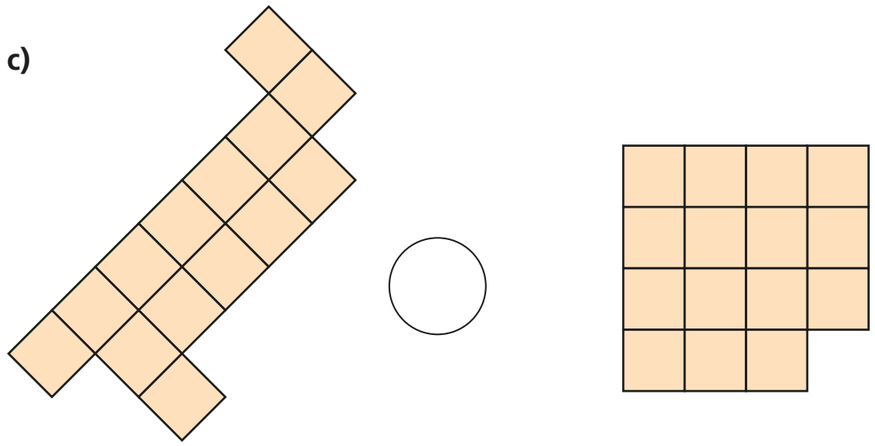
a)



b)

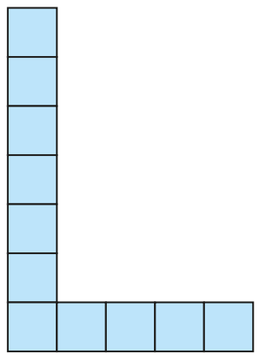


c)

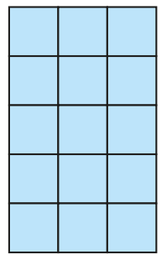


3 Mo draws these two shapes.

A



B



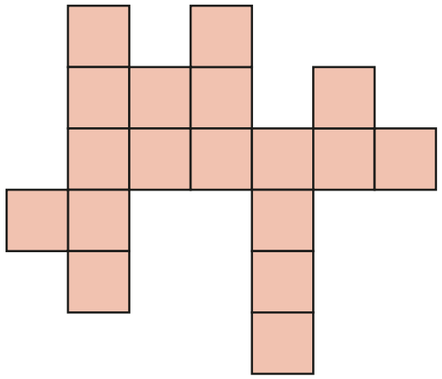
Shape B must have a smaller area than shape A because it is shorter and thinner than shape A.

Do you agree with Mo? _____

Explain your reasoning.

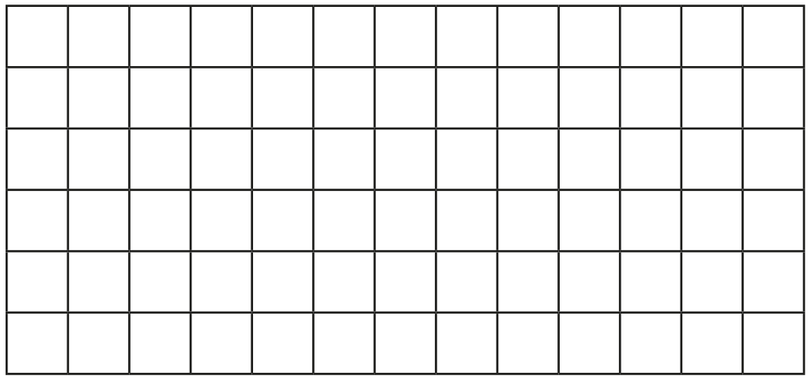
© White Rose Maths 2019

4 Here is a shape.



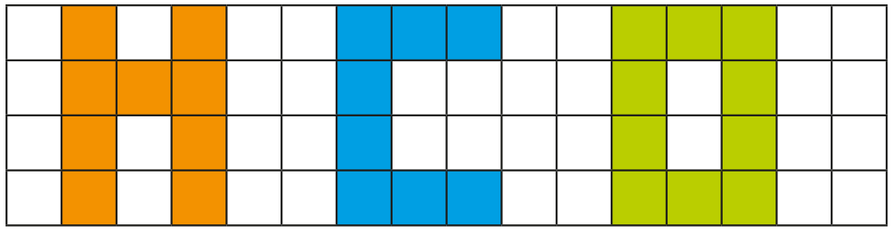
a) What is the area of this shape? ☐ squares

b) Draw a different shape with an area that is 2 squares larger.



5 Put these letter shapes in order of size.

Start with the shape with the smallest area.

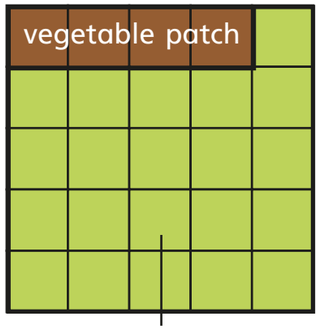


_____ _____ _____

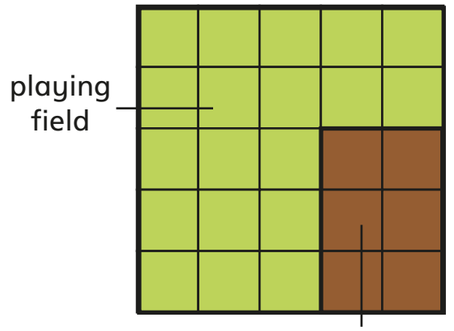
6 Here are plans of two school fields.

Each has a playing field and a vegetable patch.

High Street School



Main Street School



a) What is the difference in the area of the playing fields?

The difference in area of the playing fields is ☐ squares.

b) What is the difference in the area of the vegetable patches?

The difference in area of the vegetable patches is ☐ squares.

c) High Street School doubles the size of its vegetable patch.

Main Road School adds 1 square to its vegetable patch.

Which school now has the larger vegetable patch?

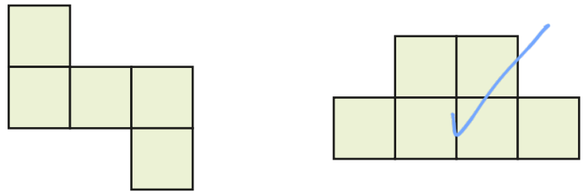
Show your working.

_____ School now has the larger vegetable patch.

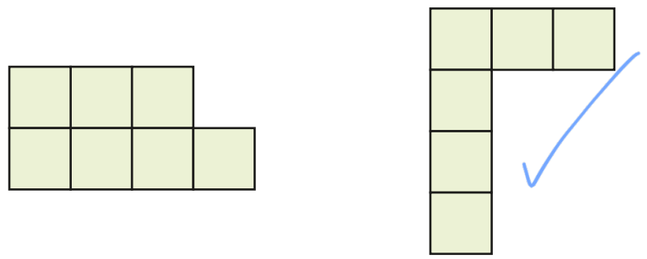
© White Rose Maths 2019

Comparing area

1 **a)** Tick the shape with the larger area.

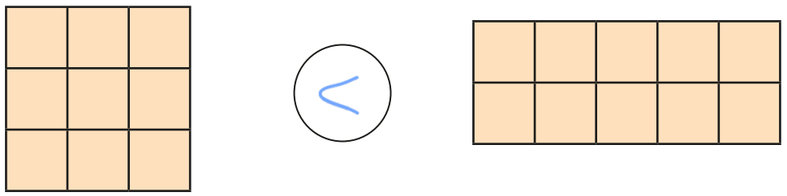


b) Tick the shape with the smaller area.

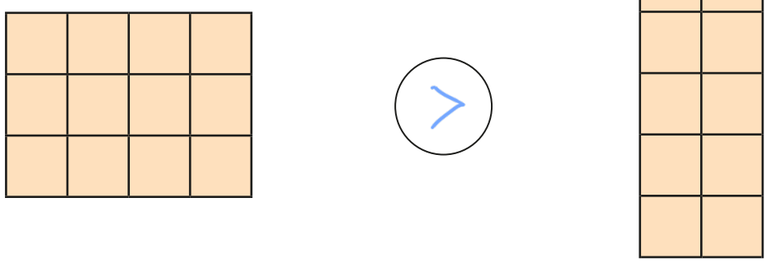


2 Write <, > or = to compare the area of the shapes.

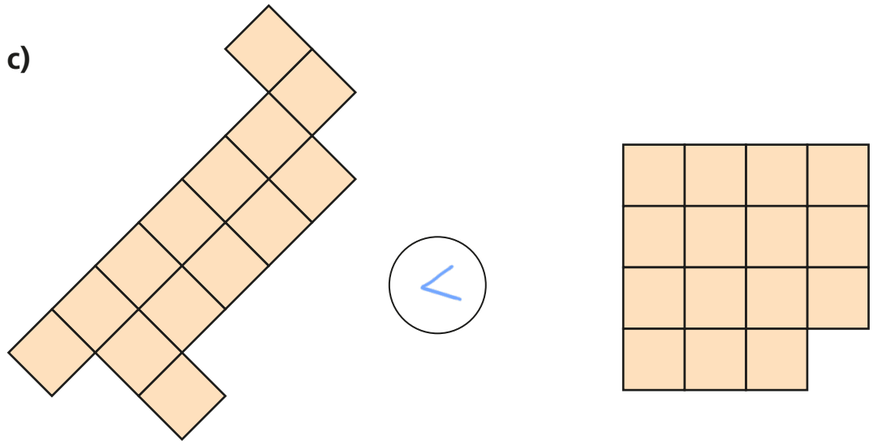
a)



b)

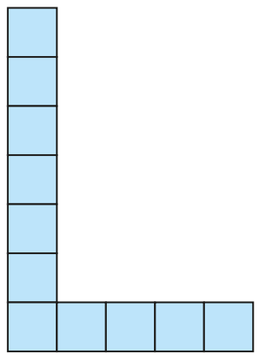


c)

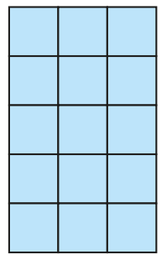


3 Mo draws these two shapes.

A



B



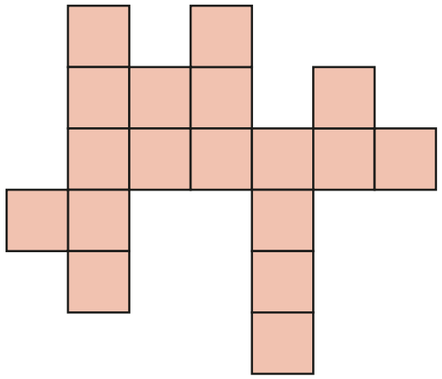
Shape B must have a smaller area than shape A because it is shorter and thinner than shape A.

Do you agree with Mo? NO

Explain your reasoning.

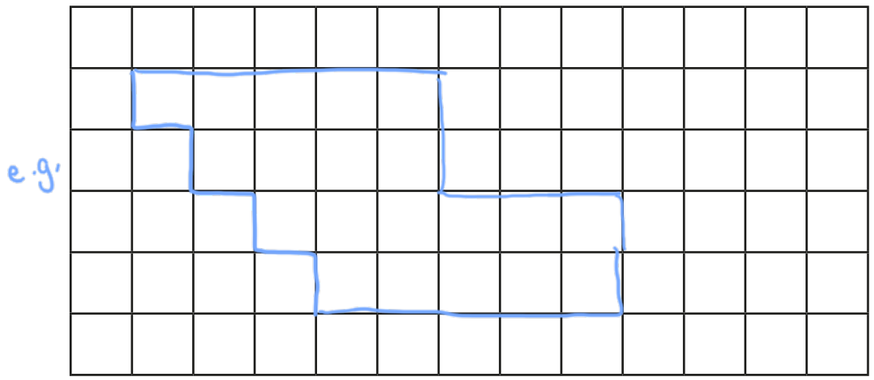
© White Rose Maths 2019

4 Here is a shape.



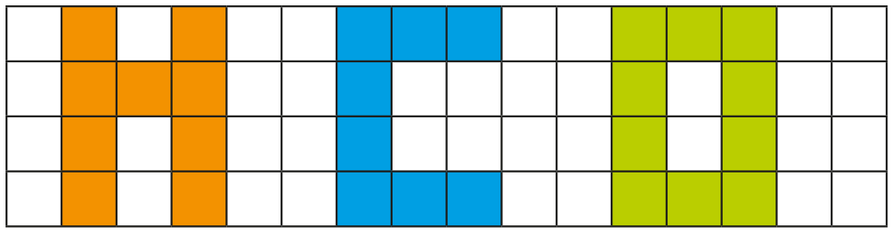
a) What is the area of this shape? 18 squares

b) Draw a different shape with an area that is 2 squares larger.



5 Put these letter shapes in order of size.

Start with the shape with the smallest area.

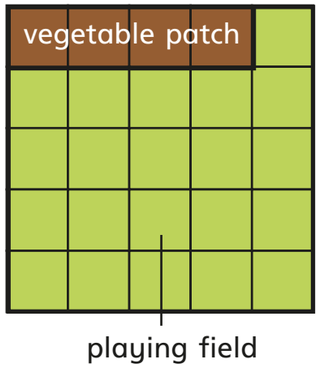


C H O

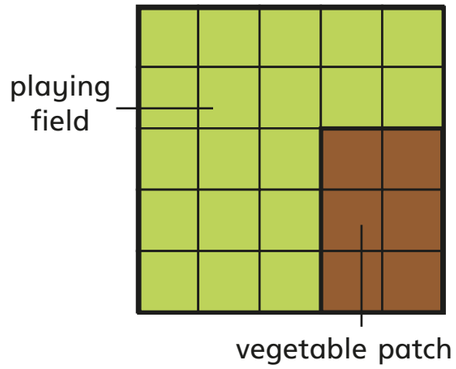
6 Here are plans of two school fields.

Each has a playing field and a vegetable patch.

High Street School



Main Street School



a) What is the difference in the area of the playing fields?

The difference in area of the playing fields is 2 squares.

b) What is the difference in the area of the vegetable patches?

The difference in area of the vegetable patches is 2 squares.

c) High Street School doubles the size of its vegetable patch.

Main Road School adds 1 square to its vegetable patch.

Which school now has the larger vegetable patch?

Show your working.

High Street School now has the larger vegetable patch.

© White Rose Maths 2019