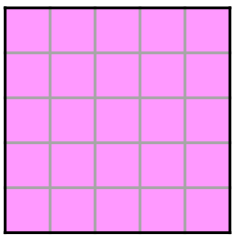
Area of Rectangles

1a. Hafsa is buying wooden tiles for all the downstairs rooms in her house.

The area of each tile is 1m².



Hafsa thinks that she needs 25 tiles.
Is she correct? Explain your answer.

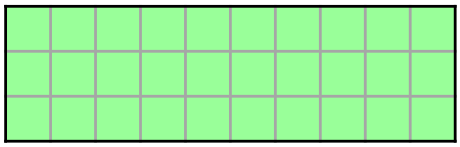
D

Not to scale

R

1b. Chuan is buying floor tiles for the school hall.

The area of each tile is 1m².



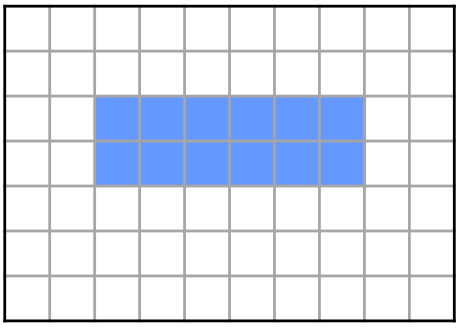
Chuan thinks he needs to order 27 tiles.
Is he correct? Explain your answer.

D

Not to scale

R

2a. This rectangle has an area of 12cm². Find other possible lengths and widths which give the same area.



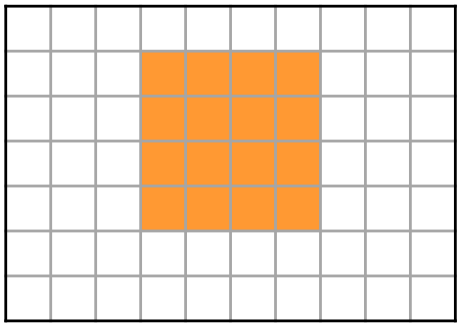
Find 2 possible answers.

D

Not to scale

PS

2b. This rectangle has an area of 16cm². Find other possible lengths and widths which give the same area.



Find 2 possible answers.

D

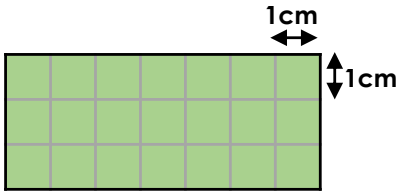
Not to scale

PS

3a. Lucy has calculated the area of a rectangle.

Lucy

The area of this rectangle is 20cm² because 3cm x 7cm = 20cm².



Is Lucy correct? Prove it.

D

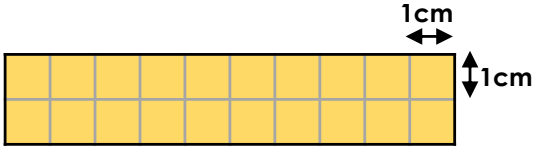
Not to scale

R

3b. Cian has estimated the area of a rectangle.

Cian

The estimated area of this rectangle is 18cm² because 2cm x 9cm = 18cm².



Is Cian correct? Prove it.

D

Not to scale

R

Area of Rectangles

4a. Mrs Kelly is buying turf tiles for the playing field at school.

The area of each tile is $2m^2$.

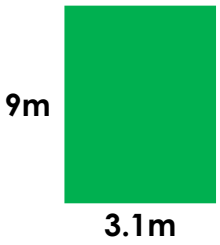
Mrs Kelly thinks she needs to order 50 tiles.
Is she correct? Explain your answer.

E Not to scale R

Area of Rectangles

4b. Ben is buying turf tiles for his garden.

The area of each tile is $3m^2$.



Ben thinks he needs to order 9 tiles.
Is he correct? Explain your answer.

E Not to scale R

5a. A rectangle has an area of $36cm^2$.
What could the dimensions be?

Area = $36cm^2$

Find 3 possible answers.

E Not to scale PS

5b. A rectangle has an area of $24cm^2$.
What could the dimensions be?

Area = $24cm^2$

Find 3 possible answers.

E Not to scale PS

6a. Sinead has estimated the area of a rectangle.

Sinead

The estimated area of this rectangle is $96cm^2$ because 8cm x 12cm = $96cm^2$.

Is Sinead correct? Prove it.

E Not to scale R

6b. Josh has estimated the area of a rectangle.

Josh

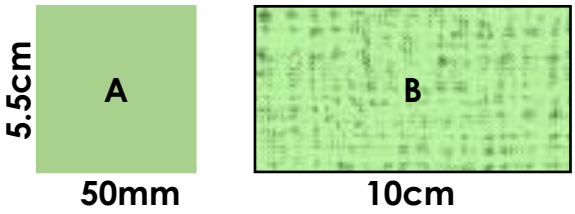
The estimated area of this rectangle is $24cm^2$ because 4cm x 6cm = $24cm^2$.

Is Josh correct? Prove it.

E Not to scale R

Area of Rectangles

7a. Gabriel is creating a mosaic that has an area of approximately 600cm^2. He wants to use two different tiles.



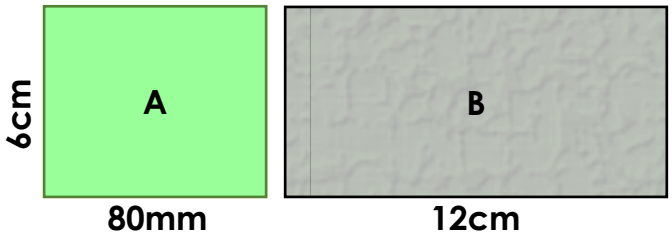
If he uses 10 of tile B, he thinks he will be able to use 3 tile A's in the remaining area.
Is he correct? Explain your answer.

GD

Not to scale

R

7b. Isabel is creating a pattern that has an area of approximately 672cm^2. She wants to use two different tiles.



If she uses 5 of tile A, she thinks she will be able to use 8 tile B's in the remaining area.
Is she correct? Explain your answer.

GD

Not to scale

R

8a. Two rectangles have a combined area of approximately 10cm^2.

What could the dimensions of each rectangle be?

The rectangles have different areas. At least one rectangle has a side which is a decimal number.

Find 3 possible answers.

GD

Not to scale

PS

8b. Two rectangles have a combined area of approximately 25m^2.

What could the dimensions of each rectangle be?

The rectangles have different areas. At least one rectangle has a side which is a decimal number.

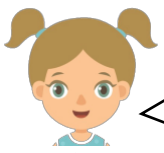
Find 3 possible answers.

GD

Not to scale

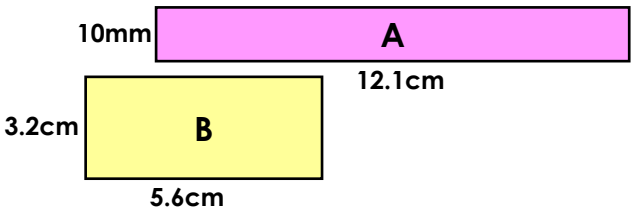
PS

9a. Alice has made a large rectangle using multiples of the rectangles below.



Alice

I can use six rectangles to create a large rectangle with an approximate area of 96cm^2.



Is Alice correct? Prove it.

GD

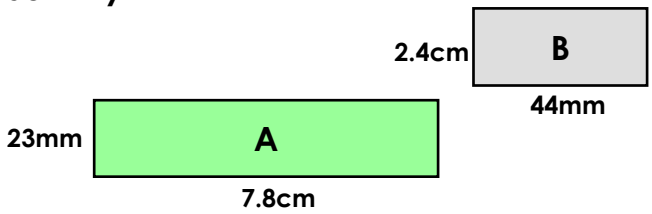
Not to scale

R

9b. Johnny has made a large rectangle using multiples of the rectangles below.

Johnny

I can use nine rectangles to create a large rectangle with an approximate area of 128cm^2.



Is Johnny correct? Prove it.

GD

Not to scale

R

Reasoning and Problem Solving
Area of Rectangles

Developing

1a. Hafsa is correct because 5cm x 5cm = 25cm^2 so 25 tiles are needed.

2a. Various answers, for example:
W=3cm and L=4cm, W=1cm and L=12cm

3a. Lucy is incorrect because she has miscalculated. 3cm x 7cm = 21cm^2 not 20cm^2.

Expected

4a. Mrs Kelly is incorrect because she has found the area of the playing field, but she needed to divide the area by 2 because the tiles are 2m^2. 50m^2 ÷ 2m^2 = 25. Mrs Kelly needs 25 tiles.

5a. Various answers, for example:
3cm x 12cm, 6cm x 6cm, 4cm x 9cm

6a. Sinead is incorrect she has rounded 8.7 to 8 rather than 9 to help her find the area. She should have completed 9cm x 12cm which equals 108cm^2.

Greater Depth

7b. Gabriel is incorrect because 10 tile B's has an area of 550cm^2. There will be a remaining area of 50cm^2 which is less than 2 of tile A.

8a. Various answers, for example:
A. 16cm x 0.5cm B. 2cm x 1cm
A. 3cm x 2cm B. 8cm x 0.5cm
A. 7cm x 1cm B. 6cm x 0.5cm

9a. Alice is correct. 2 A's and 4 B's create a rectangle with an approximate area of 96cm^2.

Reasoning and Problem Solving
Area of Rectangles

Developing

1b. Chuan is incorrect because 3cm x 10cm = 30cm^2 not 27cm^2 so 30 tiles are needed.

2b. Various answers, for example:
W=2cm and L=8cm, W=1cm and L=16cm

3b. Cian is incorrect because he has miscounted the squares. The length is 10cm not 9cm and 2cm x 10cm = 20cm^2.

Expected

4b. Ben is incorrect because he has not accounted for when he rounded down for finding the area. He will need one extra tile to cover the 9 lots of 0.1 (0.9) that he has not accounted for. He needs 10 tiles.

5b. Various answers, for example:
2cm x 12cm, 3cm x 8cm, 6cm x 4cm

6b. Josh is correct because he has rounded the decimal numbers correctly to help him find the area and completed 4cm x 6cm which is 24cm^2.

Greater Depth

7b. Isabel is incorrect because 5 tile A's has an area of 240cm^2. There will be a remaining area of 432cm^2 which is 6 tile B's.

8b. Various answers, for example:
A. 5m x 4m B. 10m x 0.5m
A. 40m x 0.5m B. 5m x 1m
A. 20m x 1m B. 2.5m x 2m

9b. Johnny is correct. 7 A's and 2 B's create an approximate area of 128cm^2.