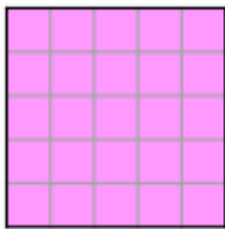


Area of Rectangles

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

The area of each tile is 1m^2 .



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



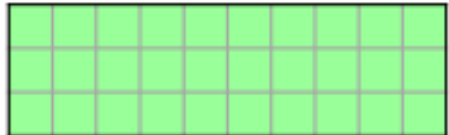
Not to scale

R

Area of Rectangles

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

The area of each tile is 1m^2 .



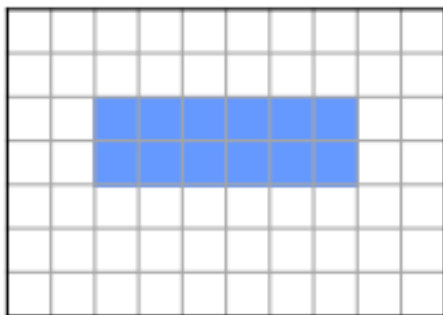
Chuan thinks he needs to order 27 tiles. Is he correct? Explain your answer.



Not to scale

R

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



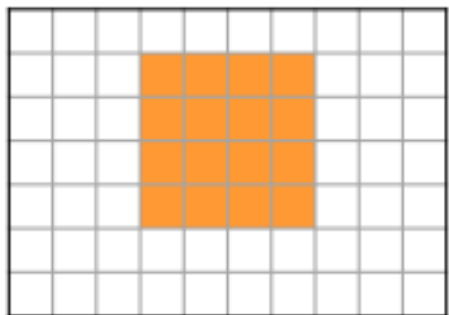
Find 2 possible answers.



Not to scale

PS

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



Find 2 possible answers.



Not to scale

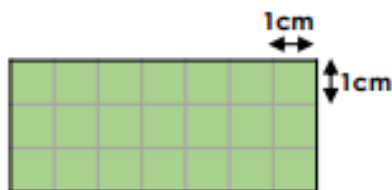
PS

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



Lucy

The area of this rectangle is 20cm^2 because $3\text{cm} \times 7\text{cm} = 20\text{cm}^2$.



Is Lucy correct? Prove it.



Not to scale

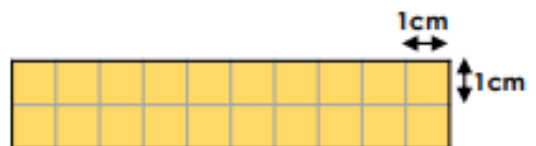
R

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



Cian

The estimated area of this rectangle is 18cm^2 because $2\text{cm} \times 9\text{cm} = 18\text{cm}^2$.



Is Cian correct? Prove it.



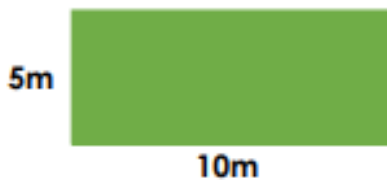
Not to scale

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.



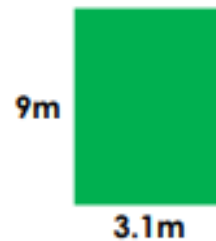
Not to scale

R

Area of Rectangles

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

The area of each tile is 3m^2 .



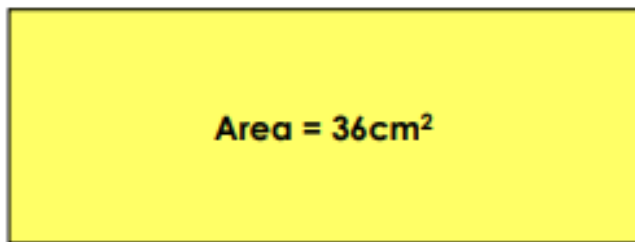
Ben thinks he needs to order 9 tiles. Is he correct? Explain your answer.



Not to scale

R

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



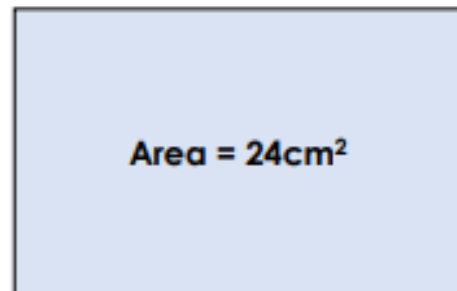
Find 3 possible answers.



Not to scale

PS

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



Find 3 possible answers.



Not to scale

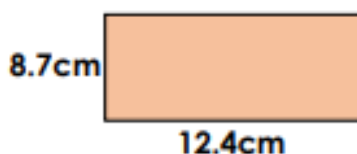
PS

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



Sinead

The estimated area of this rectangle is 96cm^2 because $8\text{cm} \times 12\text{cm} = 96\text{cm}^2$.



Is Sinead correct? Prove it.



Not to scale

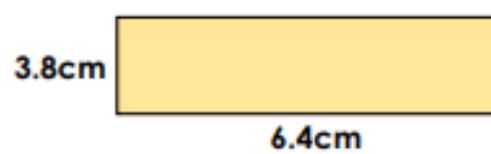
R

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



Josh

The estimated area of this rectangle is 24cm^2 because $4\text{cm} \times 6\text{cm} = 24\text{cm}^2$.



Is Josh correct? Prove it.

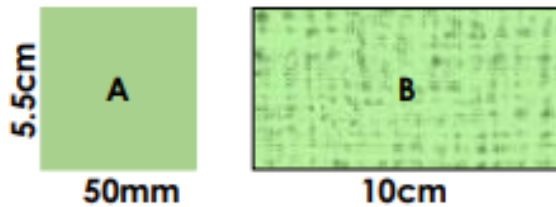


Not to scale

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.

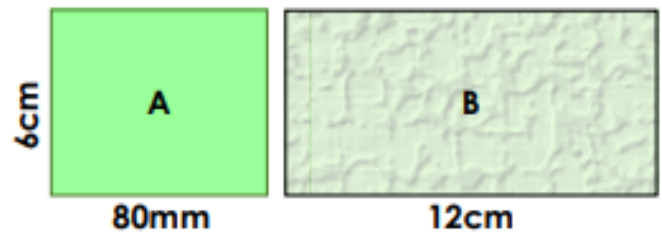


Not to scale

R

Area of Rectangles

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.



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.



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.



Not to scale

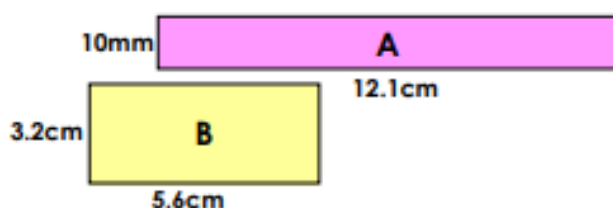
PS

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.



Not to scale

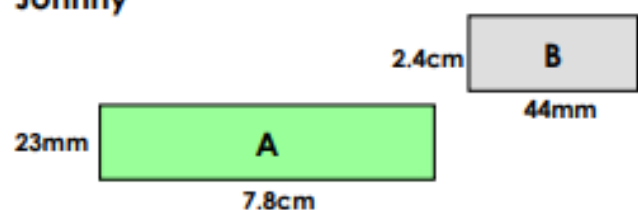
R

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.



Not to scale

R

ANSWERS

Reasoning and Problem Solving Area of Rectangles

Developing

1a. Hafsa is correct because $5\text{cm} \times 5\text{cm} = 25\text{cm}^2$ so 25 tiles are needed.

2a. Various answers, for example:

$W=3\text{cm}$ and $L=4\text{cm}$, $W=1\text{cm}$ and $L=12\text{cm}$

3a. Lucy is incorrect because she has miscalculated. $3\text{cm} \times 7\text{cm} = 21\text{cm}^2$ 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 . $50\text{m}^2 \div 2\text{m}^2 = 25$. Mrs Kelly needs 25 tiles.

5a. Various answers, for example:

$3\text{cm} \times 12\text{cm}$, $6\text{cm} \times 6\text{cm}$, $4\text{cm} \times 9\text{cm}$

6a. Sinead is incorrect she has rounded 8.7 to 8 rather than 9 to help her find the area. She should have completed $9\text{cm} \times 12\text{cm}$ 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. $16\text{cm} \times 0.5\text{cm}$ B. $2\text{cm} \times 1\text{cm}$

A. $3\text{cm} \times 2\text{cm}$ B. $8\text{cm} \times 0.5\text{cm}$

A. $7\text{cm} \times 1\text{cm}$ B. $6\text{cm} \times 0.5\text{cm}$

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 $3\text{cm} \times 10\text{cm} = 30\text{cm}^2$ not 27cm^2 so 30 tiles are needed.

2b. Various answers, for example:

$W=2\text{cm}$ and $L=8\text{cm}$, $W=1\text{cm}$ and $L=16\text{cm}$

3b. Cian is incorrect because he has miscounted the squares. The length is 10cm not 9cm and $2\text{cm} \times 10\text{cm} = 20\text{cm}^2$.

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:

$2\text{cm} \times 12\text{cm}$, $3\text{cm} \times 8\text{cm}$, $6\text{cm} \times 4\text{cm}$

6b. Josh is correct because he has rounded the decimal numbers correctly to help him find the area and completed $4\text{cm} \times 6\text{cm}$ 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. $5\text{m} \times 4\text{m}$ B. $10\text{m} \times 0.5\text{m}$

A. $40\text{m} \times 0.5\text{m}$ B. $5\text{m} \times 1\text{m}$

A. $20\text{m} \times 1\text{m}$ B. $2.5\text{m} \times 2\text{m}$

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