Reasoning and Problem Solving
Step 3: Making Shapes

National Curriculum Objectives:

Mathematics Year 4: (4M7b) Find the area of rectilinear shapes by counting squares

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Determine whether the given statement about making shapes is correct. Using up to 10 square tiles to make a square or a rectangle.
Expected Determine whether the given statement about making shapes is correct. Using up to 20 square tiles to make a square or a rectangle.
Greater Depth Determine whether the given statement about making shapes is correct. Using square or half square tiles to make a rectilinear shape.

Questions 2, 5 and 8 (Problem Solving)
Developing Draw two possible squares or rectangles to match a given area using square tiles.
Expected Draw three possible rectilinear shapes to match a given area using square tiles.
Greater Depth Draw three possible rectilinear shapes to match a given area using square or half square tiles.

Questions 3, 6 and 9 (Problem Solving)
Developing Complete a square or rectangle on a grid using a given area.
Expected Complete a rectilinear shape on a grid using squares.
Greater Depth Complete a rectilinear shape on a grid using squares and half squares.

More Year 4 Area resources.

Did you like this resource? Don't forget to review it on our website.

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Making Shapes

1a. Cassie is using square tiles to make a shape. She says,

I can only make a rectangle if I have an even number of tiles.

Is she correct? Prove it.

D

R

Making Shapes

1b. Simon is using square tiles to make a shape. He says,

I can make a square using an odd number of tiles.

Is he correct? Prove it.

D

R

2a. Rowan has drawn 2 rectangles. Each shape has an area of 8 square tiles. What shapes could he have drawn?

Draw them on the grids below.

D

PS

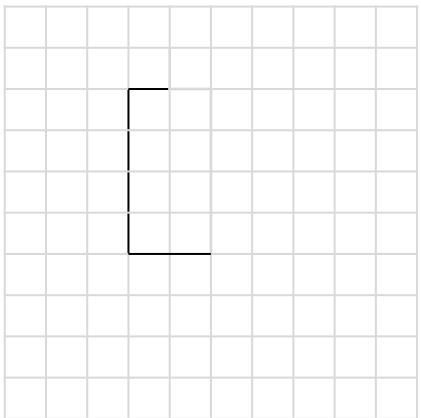
2b. Selena has drawn 2 different shapes. Each shape has an area of 4 square tiles. What shapes could she have drawn?

Draw them on the grids below.

D

PS

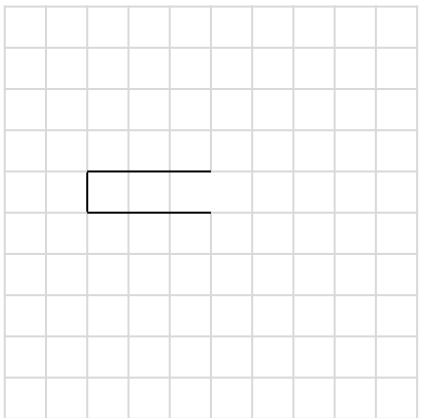
3a. Complete the shape so that it is a rectangle made up of 12 square tiles.



D

PS

3b. Complete the shape so that it is made up of 7 square tiles.



D

PS

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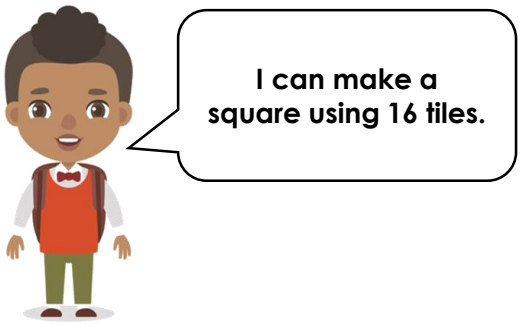
Making Shapes

4a. Jacob is using square tiles to make a shape. He says,



Is he correct? Prove it.

E

R

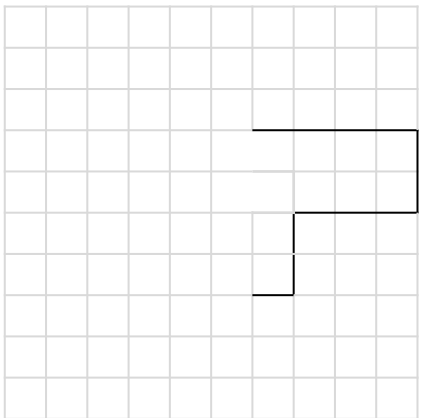
5a. Helen has drawn 3 different rectilinear shapes. Each shape has an area of 12 square tiles with no more than 6 sides. What shapes could she have drawn?

Draw them on the grids below.

E

PS

6a. Complete the shape so that it has an area of 25 square tiles.

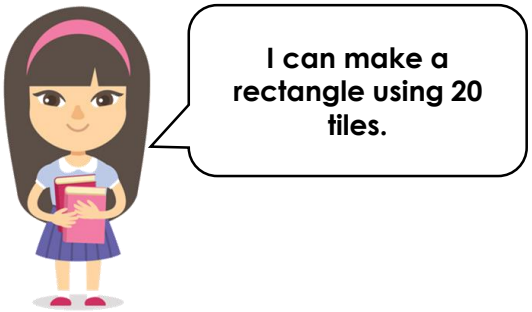


E

PS

Making Shapes

4b. Fiona is using square tiles to make a shape. She says,



Is she correct? Prove it.

E

R

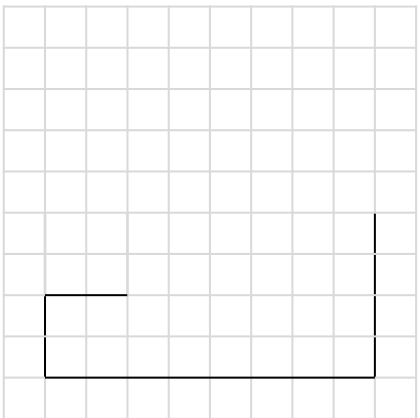
5b. Jovan has drawn 3 different rectilinear shapes. Each shape has an area of 23 square tiles with no more than 6 sides. What shapes could he have drawn?

Draw them on the grids below.

E

PS

6b. Complete the shape so that it has an area of 30 square tiles.



E

PS

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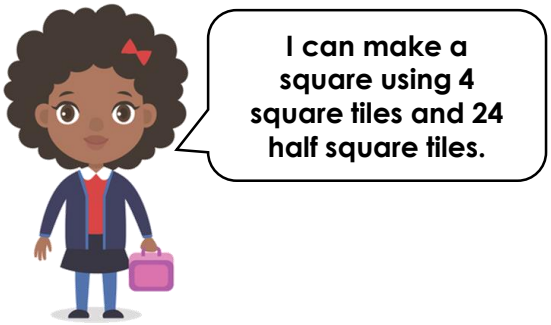
Making Shapes

7a. Rosetta is using square and half square tiles to make a shape. She says,



Is she correct? Prove it.

GD

R

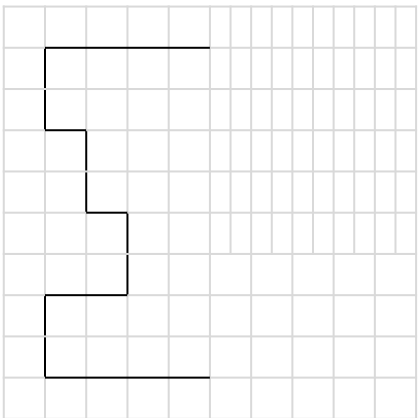
8a. Herbie has drawn 3 different rectilinear shapes using half squares. Each shape has an area of 20 squares and has no more than 12 sides. What shapes could he have drawn?

Draw them on the grids below.

GD

PS

9a. Complete the shape so that it has an area of 44 square tiles.

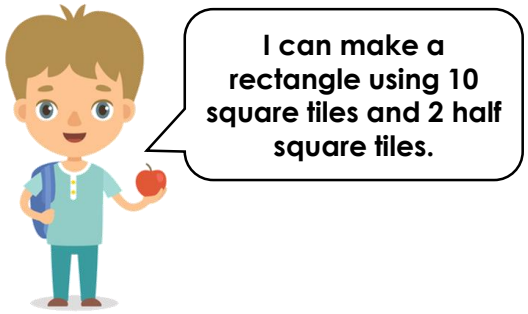


GD

PS

Making Shapes

7b. Nathan is using square and half square tiles to make a shape. He says,



Is he correct? Prove it.

GD

R

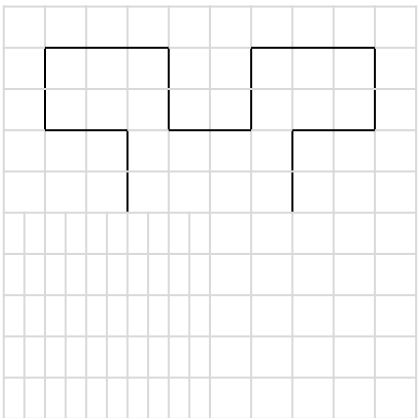
8b. Sophie has drawn 3 different rectilinear shapes using half squares. Each shape has an area of 14 squares and has no more than 12 sides. What shapes could she have drawn?

Draw them on the grids below.

GD

PS

9b. Complete the shape so that it has an area of 30 square tiles.



GD

PS

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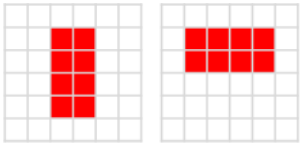
Reasoning and Problem Solving
Making Shapes

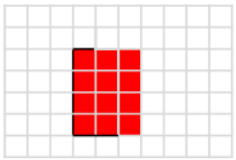
Developing

1a. Cassie is incorrect. She could create a 5 x 3 rectangle with an area of 15.

2a.



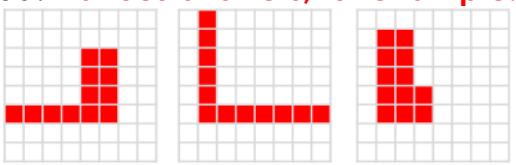
3a. Various answers, for example:



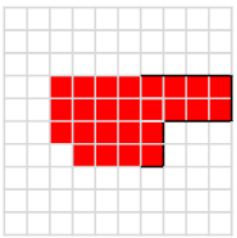
Expected

4a. Jacob is correct. He could create a 4 x 4 square with an area of 16.

5a. Various answers, for example:



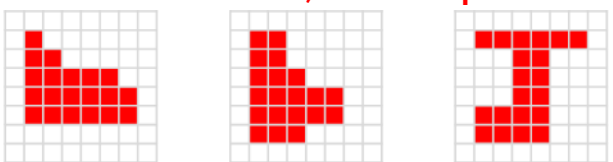
6a. Various answers, for example:



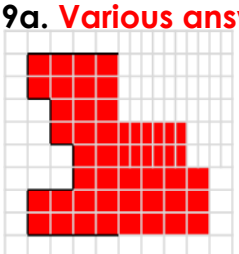
Greater Depth

7a. Rosetta is correct. She can make a 4 x 4 square.

8a. Various answers, for example:



9a. Various answers, for example:

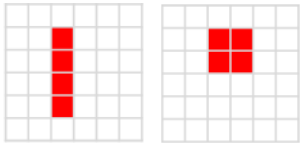


Reasoning and Problem Solving
Making Shapes

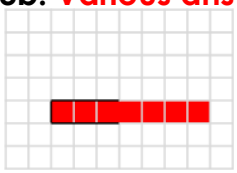
Developing

1b. Simon is correct. He can create a 5 x 5 square with an area of 25.

2b.



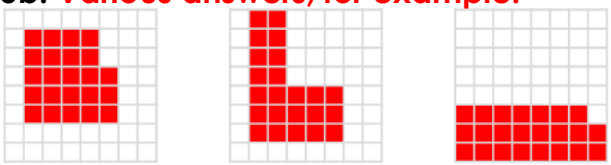
3b. Various answers, for example:



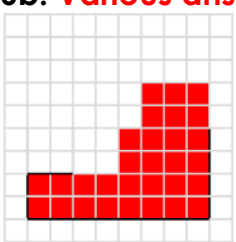
Expected

4b. Fiona is correct. She could create a 4 x 5 rectangle with an area of 20.

5b. Various answers, for example:



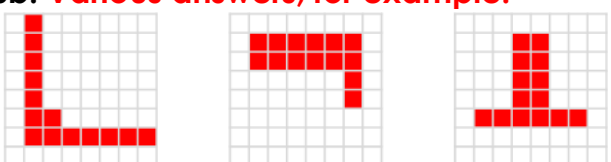
6b. Various answers, for example:



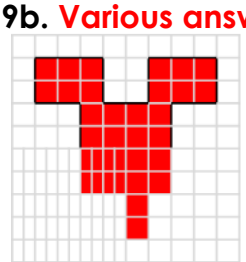
Greater Depth

7b. Nathan is correct. He can make an 11 x 1 rectangle.

8b. Various answers, for example:



9b. Various answers, for example:



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