

Reasoning and Problem Solving

Step 4: Translation

National Curriculum Objectives:

Mathematics Year 5: (5P2) [Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed](#)

Differentiation:

Questions 1, 4 and 7 (Reasoning)

Developing Use knowledge of translation to decide if a completed translation is correct (1x1 square only).

Expected Use knowledge of translation to decide if a completed translation is correct (polygons with up to 6 sides).

Greater Depth Use knowledge of translation to decide if a completed translation is correct (includes irregular shapes with up to 8 sides).

Questions 2, 5 and 8 (Problem Solving)

Developing Identify the two correct translations (from a choice of three).

Expected Identify the correct translations and complete the missing translation.

Greater Depth Identify the correct translations and complete the missing translation (includes irregular shapes with up to 8 sides).

Questions 3, 6 and 9 (Reasoning)

Developing Explain whether a statement is correct.

Expected Explain whether a statement is correct and support answers by giving an example.

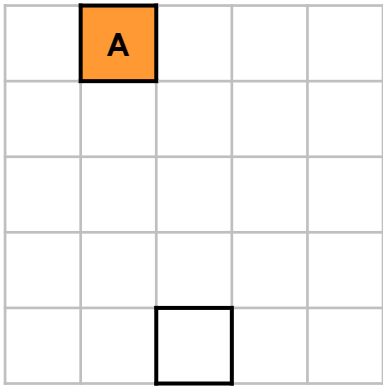
Greater Depth Explain whether a statement about methods of translation is correct, and support answers by giving an example.

More [Year 5 Position and Direction](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Translation

1a. Niall has translated shape A 1 left and 4 down.



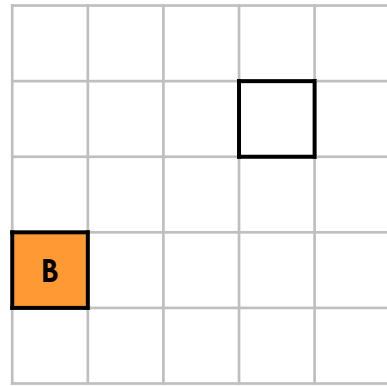
Is he correct? Explain your answer.



R

Translation

1b. Melissa has translated shape B 3 right and 1 up.

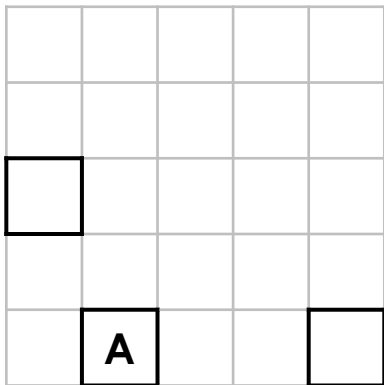


Is she correct? Explain your answer.



R

2a. Starting from shape A each time, circle the translation that has not been completed.



1 left, 2 up

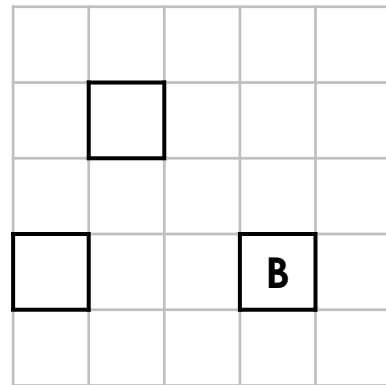
3 right, 0 down

1 left, 0 down



PS

2b. Starting from shape B each time, circle the translation that has not been completed.



3 left, 0 down

2 left, 2 up

1 right, 3 up



PS

3a. Aleena is translating shapes.



You can use a mirror to help translate shapes.

Do you agree with Aleena? Explain your answer.



R

3b. Noah is translating shapes.



When you translate a shape, the dimensions of the shape change.

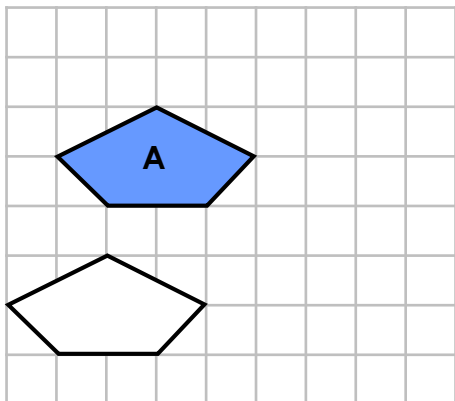
Do you agree with Noah? Explain your answer.



R

Translation

4a. Megan has translated shape A 1 left and 4 down.



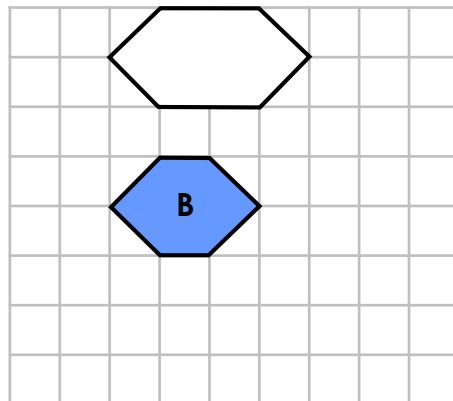
Is she correct? Explain your answer.



R

Translation

4b. Peter has translated shape B 1 right and 3 up.

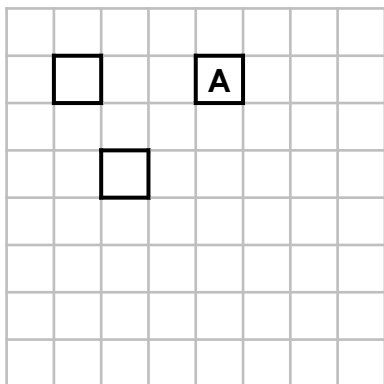


Is he correct? Explain your answer.



R

5a. Starting from shape A each time, circle the translation that has not been completed.



3 left, 0 up

2 right, 5 down

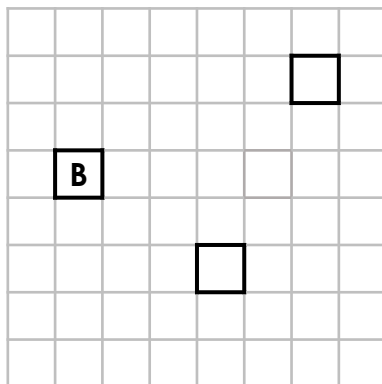
2 left, 2 down



Complete the missing translation.

PS

5b. Starting from shape B each time, circle the translation that has not been completed.



5 right, 2 up

4 right, 0 down

3 right, 2 down



Complete the missing translation.

PS

6a. Tyrese is translating shapes.



When you are giving instructions for translation, up or down follows instructions for left or right.

Do you agree with Tyrese? Support your answer by drawing your own example.



R

6b. Kenya is translating shapes.



When you translate a shape, the angles of the shape can change.

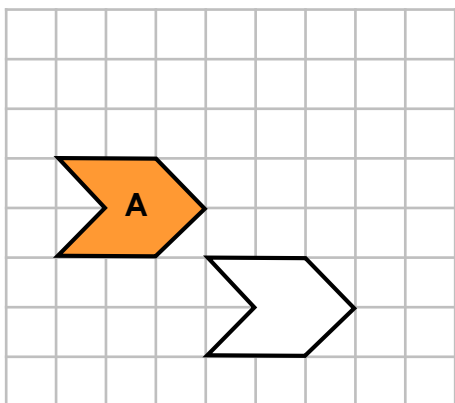
Do you agree with Kenya? Support your answer by drawing your own example.



R

Translation

7a. Clarissa has translated shape A 3 right and 3 down.



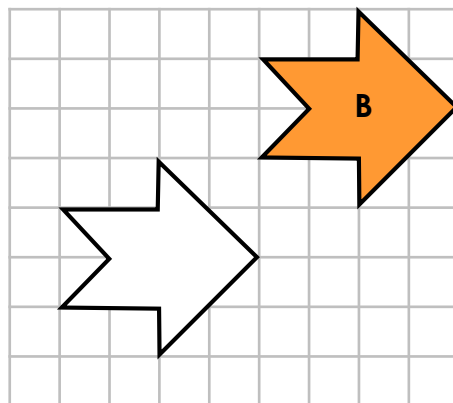
Is she correct? Explain your answer.



R

Translation

7b. Jace has translated shape B 5 left and 4 down.

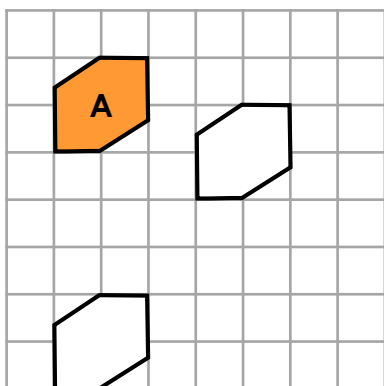


Is he correct? Explain your answer.



R

8a. Starting from shape A each time, circle the translation that has not been completed.



0 right, 5 down

3 right, 1 down

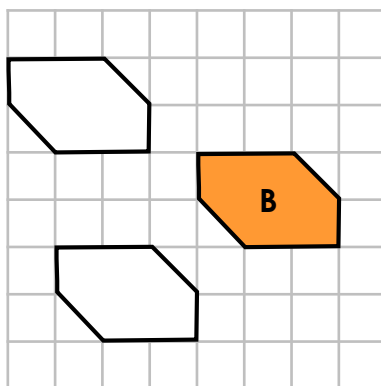
3 right, 4 down



Complete the missing translation.

PS

8b. Starting from shape B each time, circle the translation that has not been completed.



3 left, 2 down

4 left, 2 up

0 right, 3 up



Complete the missing translation.

PS

9a. Rose is translating shapes.



Instead of using left or right and up or down, it would be better to have one diagonal instruction.

Do you agree with Rose? Support your answer by drawing your own example.



R

9b. Leo is translating shapes.



A good method of translating shapes is to plot each point in its new position and then draw the lines.

Do you agree Leo? Support your answer by drawing your own example.



R

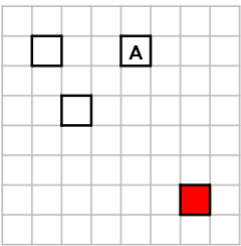
Reasoning and Problem Solving Translation

Developing

- 1a. Niall has translated shape A incorrectly. He has translated it 1 right instead of 1 left.
2a. 1 left, 0 down
3a. No, mirrors are used to reflect shapes.

Expected

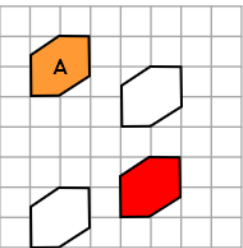
- 4a. Megan has incorrectly translated the shape 1 left, 4 down. She has only moved it 3 down. The shape needs to move down another square.
5a. 2 right, 5 down



- 6a. Yes. Left or right comes before up or down as this is the order coordinates are also read. Children should support their answer by drawing their own example of a translation.

Greater Depth

- 7a. Clarissa has incorrectly translated the shape 3 right, 3 down. She has only moved it 2 down. The shape needs to move down another square.
8a. 3 right, 4 down



- 9a. No, one diagonal instruction would not work as the direction of translation would not be clear. Children should support their answer by drawing their own example of a translation.

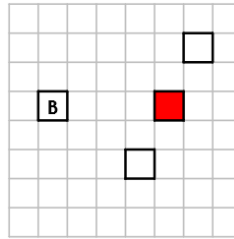
Reasoning and Problem Solving Translation

Developing

- 1b. Melissa has translated shape B incorrectly. She has translated it 2 up instead of 1 up.
2b. 2 right, 3 up
3b. No, the dimensions stay the same.

Expected

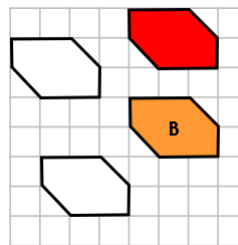
- 4b. Peter has not correctly translated each point of the shape (1 right and 3 up) so this has changed the size of the shape.
5b. 4 right, 0 down



- 6b. No. The angles stay the same as the dimensions do not change. Children should support their answer by drawing their own example of a translation.

Greater Depth

- 7b. Jace has incorrectly translated the shape 5 left, 4 down. The shape needs to move 1 square left and 1 square down.
8b. 0 right, 3 up



- 9b. Yes, you are more likely to get an accurate translation this way. Children should support their answer by drawing their own example of a translation.