

Measurement and Geometry: Location and Transformation: Identifying Translated Shapes

Australian Curriculum

This lesson plan could be used to support the teaching and learning of the following Content Description from the Australian Curriculum.




















Y5 – Measurement and Geometry

Describe translations, reflections and rotations of two-dimensional shapes. Identify line and rotational symmetries (ACMMG114)

Child-Friendly Aim: I can identify the position of a shape following a translation.	Success Criteria: I can read, write and plot coordinates in the first quadrant. I know that translation is a movement from one position to another.	Resources: Lesson Pack
	Key/New Words: Coordinate, translation, reflection.	Preparation: Shape Translations Matching Cards – one per pair Differentiated Identifying Translated Shapes Activity Sheet – one per child

Prior Learning: It will be helpful if children have previously described movements between positions as translations of a given unit to the left or right and up or down.

Learning Sequence

	Translation Quiz: Choosing from the three options shown on the Lesson Presentation, the children correctly identify the translation for the shape shown on a 2D grid.				
	Translation Without a Grid: Use the information and images on the Lesson Presentation to demonstrate how to work out the position of a 2D shape after a translation where there is no background grid for reference.				
	Shape Translations Matching Game: Spread the Shape Translations Matching Cards face down on the table. The children work in a group to take it in turns to turn over two cards to try to match a missing coordinate to a translated 2D shape. If they make a match they keep the cards, if not they turn them back over. The winner is the player who collects the most pairs.				
	Identifying Translated Shapes: Children complete the differentiated Identifying Translated Shapes Activity Sheet, to demonstrate they can identify the position of a shape following a translation. <table style="width: 100%; text-align: center;"> <tr> <td> Identify the missing position of a translated 2D shape along one axis.</td> <td> Identify the missing position of a translated 2D shape along both axes.</td> <td> Identify the positions of a translated 2D shape along both axes.</td> </tr> </table>	 Identify the missing position of a translated 2D shape along one axis.	 Identify the missing position of a translated 2D shape along both axes.	 Identify the positions of a translated 2D shape along both axes.	
 Identify the missing position of a translated 2D shape along one axis.	 Identify the missing position of a translated 2D shape along both axes.	 Identify the positions of a translated 2D shape along both axes.			
	Mixed-Up Translations: As a class, look at the discussion cartoons displayed on the _____ and _____ and discuss which answer is correct and why.				

Masterit

Moveit: Rehearse the maths skill of translation by working in pairs to navigate each other around an obstacle course.

Gameit: Play a memory game by displaying five objects on a table and then secretly translating one object, which the children then identify and describe using the vocabulary of translation.

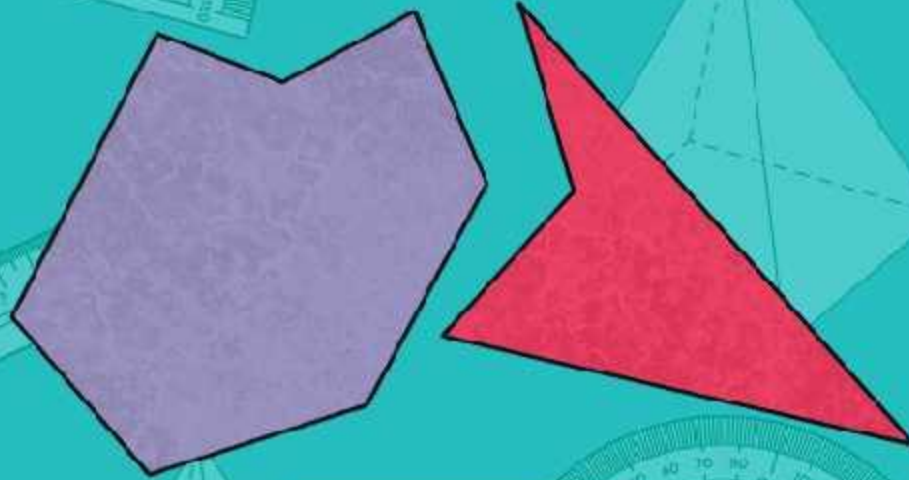
Playit: While playing a board game, describe the movements of the pieces as translations.



Mathematics

Measurement and Geometry

Identifying Translated Shapes



Aim

- I can identify the position of a shape following a translation.

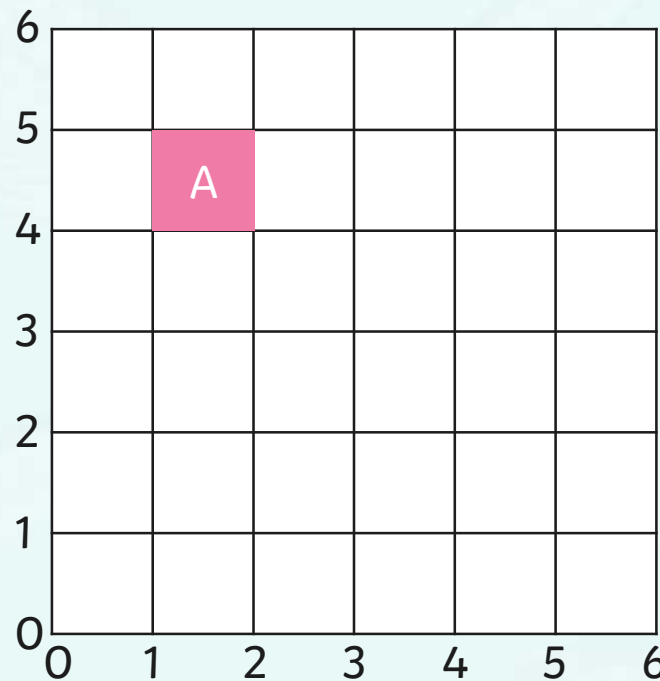
Success Criteria

- I can read, write and plot coordinates in the first quadrant.
- I know that translation is a movement from one position to another.

Translation Quiz



Click on shape A to translate it. Choose the correct translation.



Right 3
Down 4

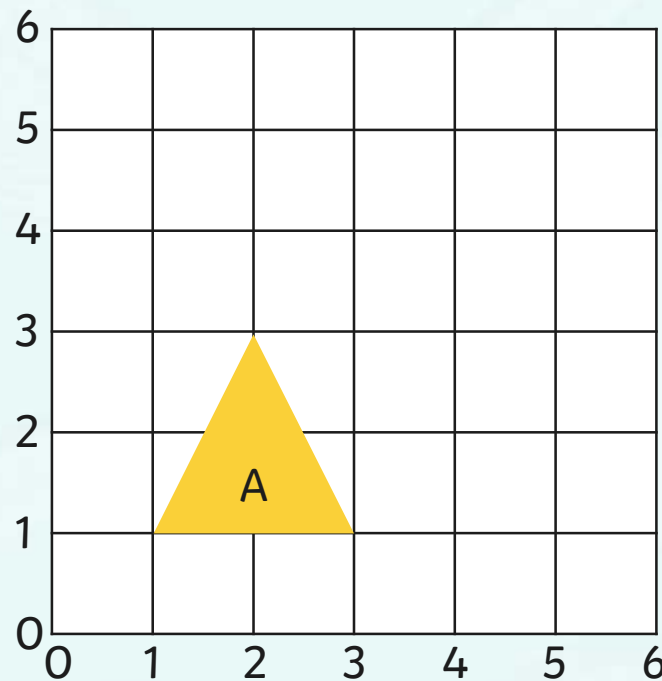
Right 2
Down 4

Right 3
Down 3

Translation Quiz



Click on shape A to translate it. Choose the correct translation.



Right 3
Up 4

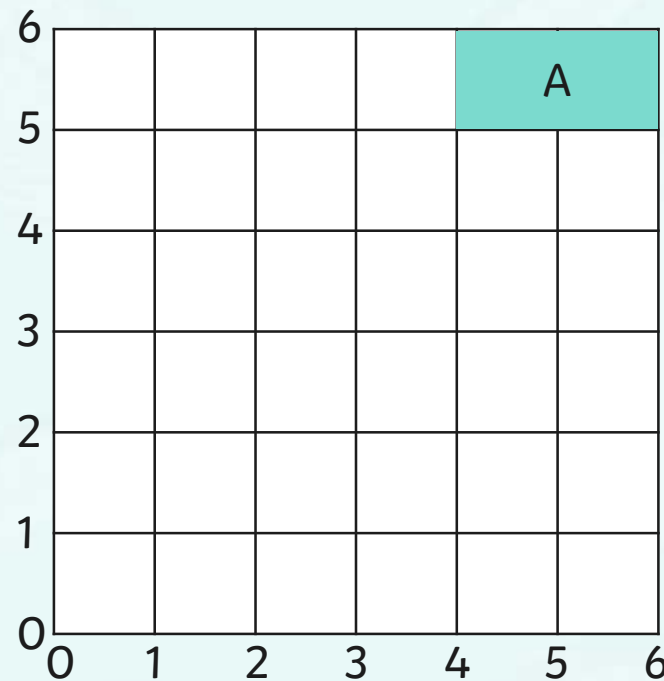
Right 2
Up 3

Right 3
Up 3

Translation Quiz



Click on shape A to translate it. Choose the correct translation.



Left 3
Down 5

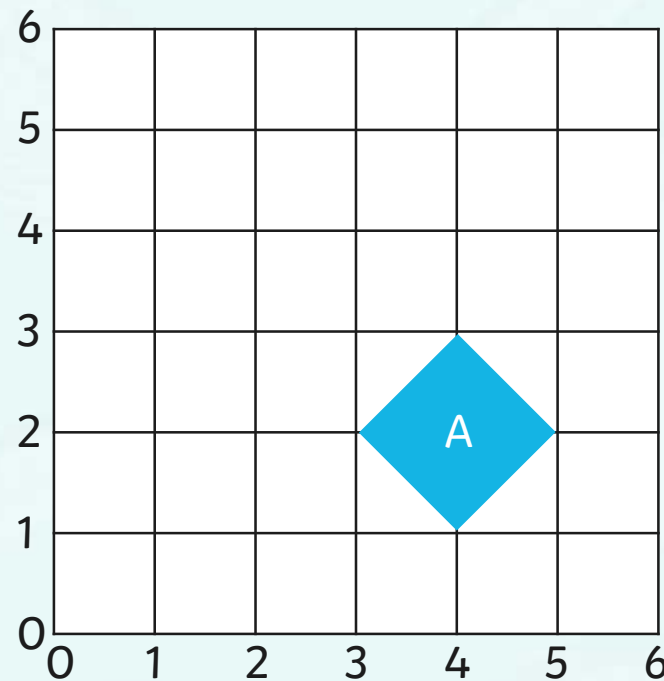
Left 4
Down 5

Left 4
Down 4

Translation Quiz



Click on shape A to translate it. Choose the correct translation.



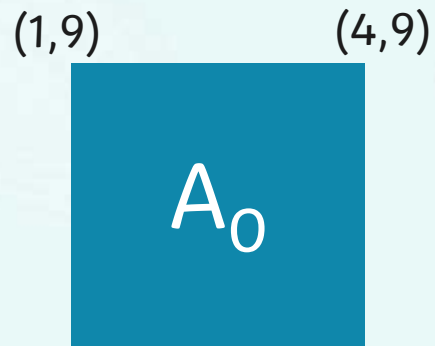
Left 3
Up 2

Left 1
Up 1

Left 2
Up 2

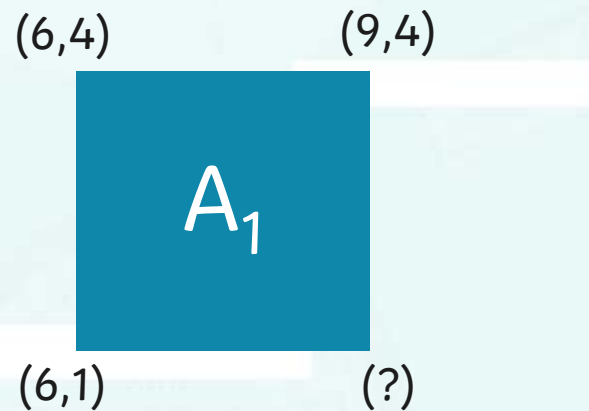
Translation Without a Grid

Click on shape A_0 to see it translated to a new position.

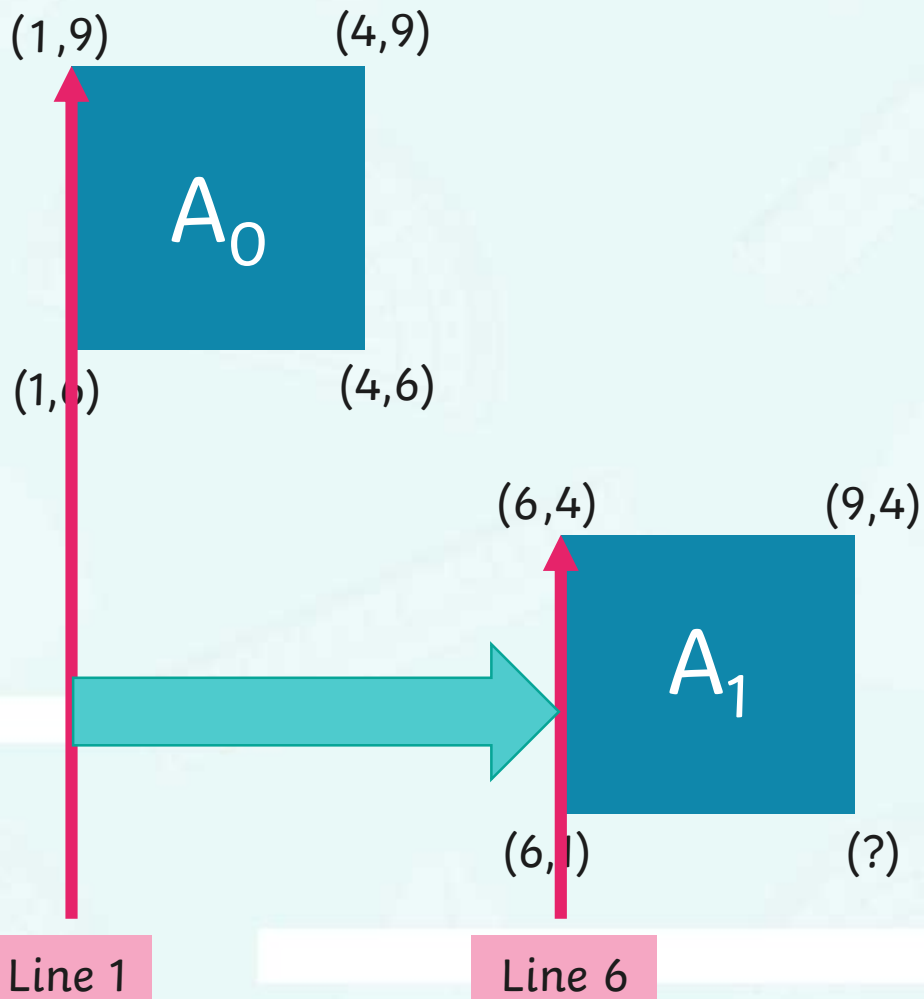


The shape has changed position but we haven't been told the translation directions and there is no grid for reference.

We have been given the coordinate positions of all the corners of the original shape and three of the new shape. Let's use this information to identify the missing coordinate.



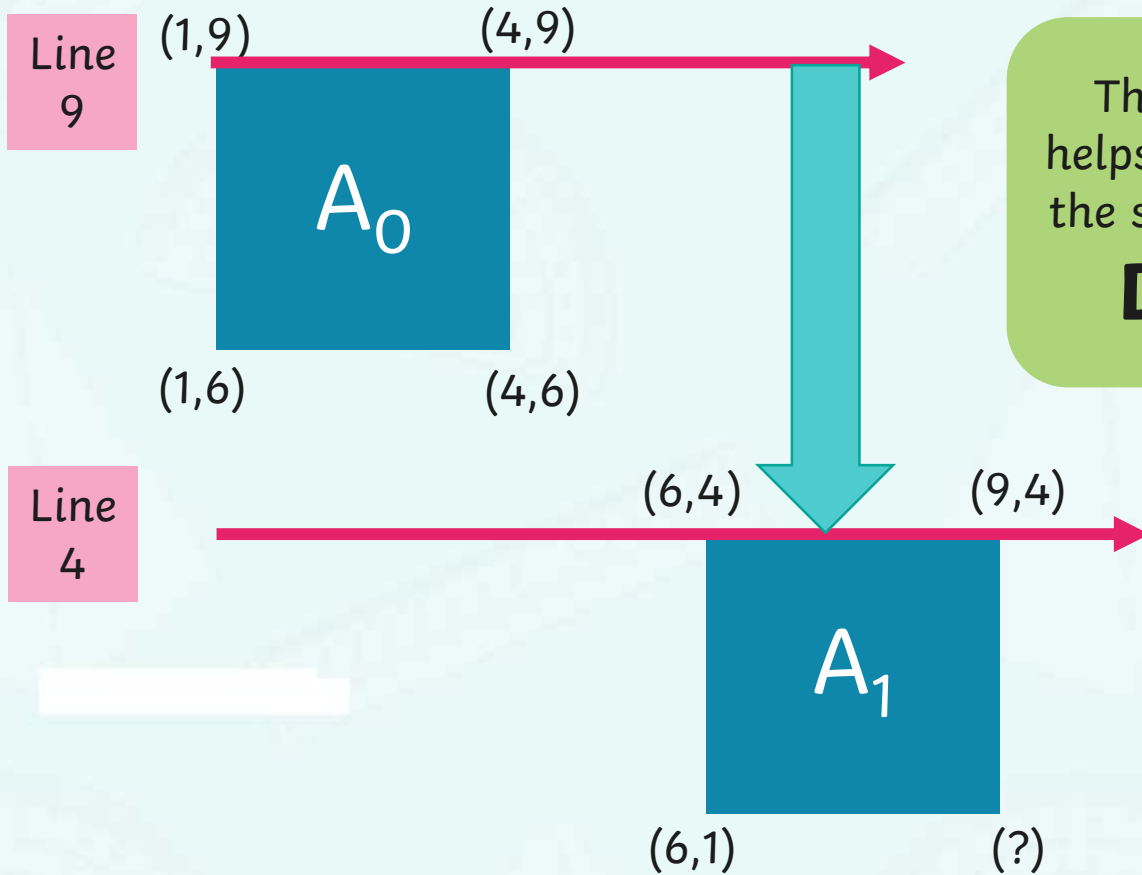
Translation Without a Grid



This information helps us identify that the shape has moved

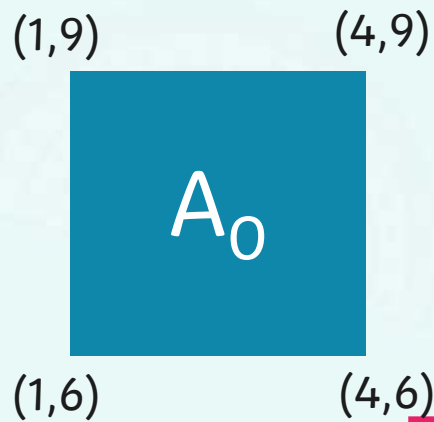
Right 5.

Translation Without a Grid

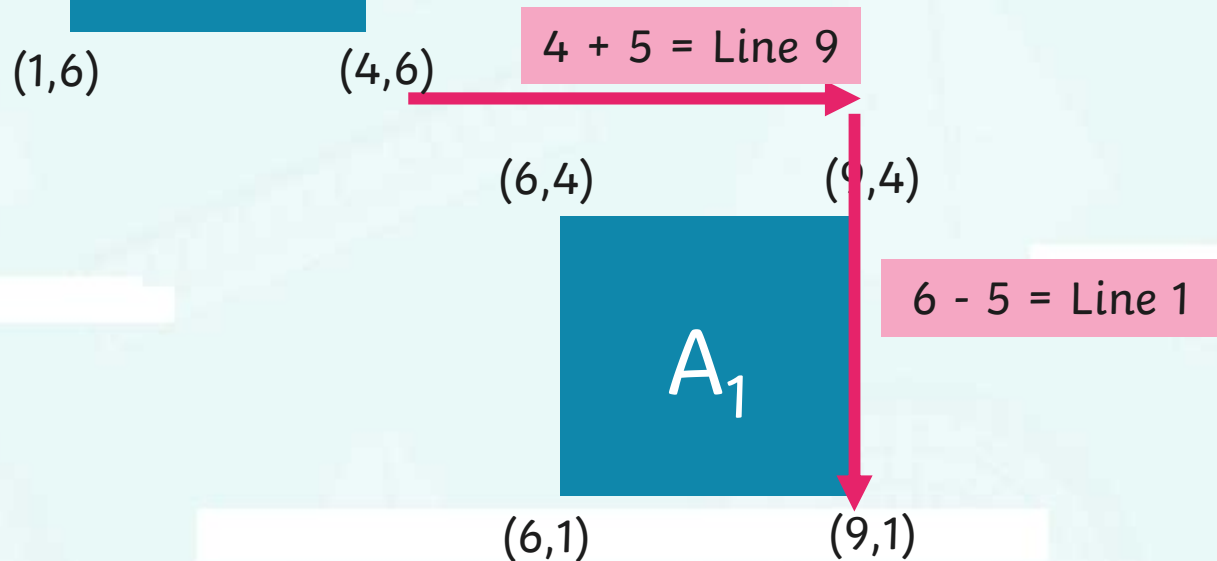


This information helps us identify that the shape has moved **Down 5.**

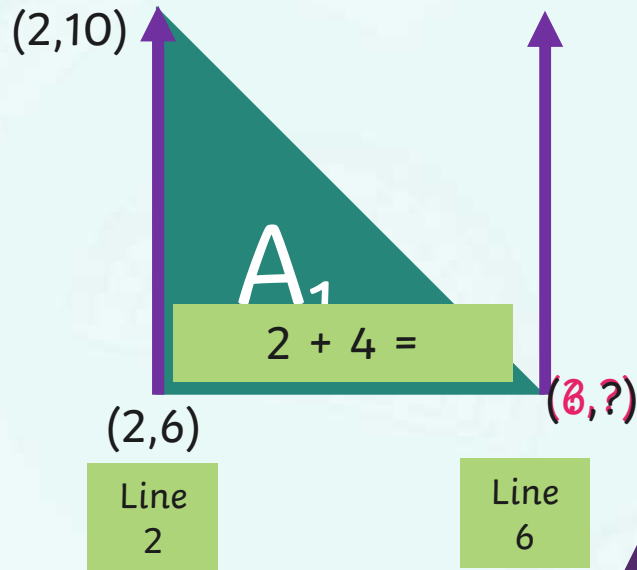
Translation Without a Grid



Now we have identified that the shape was translated
Right 5
Down 5
we can use this to identify the missing coordinate.

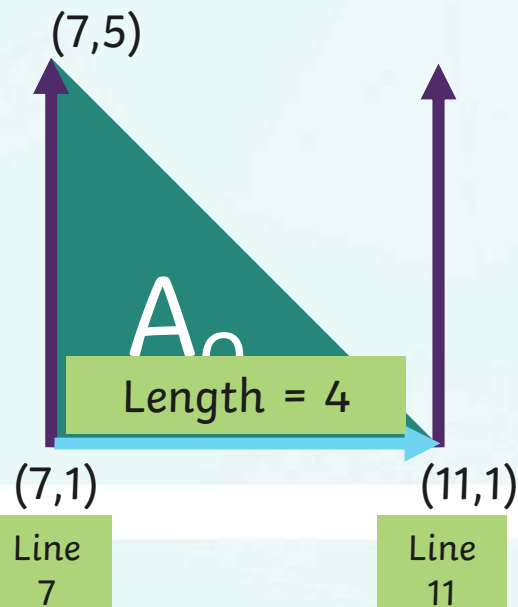


Translation Without a Grid



Another way to identify the missing position of a shape is to compare the lengths of the sides of the shape or look for known corners on the same line.

Click on shape A_0 to see it translated to a new position.



Translation Without a Grid

(2,10)



A_0

(2, 6)

(6, 6)

We know this is line 6 of the y axis

Another way to identify the missing position of a shape is to compare the lengths of the sides of the shape or look for known corners on the same line.

(7,5)



A_1

(7,1)

(11,1)

Click on shape A_0 to see it translated to a new position.

Shape Translations

Matching Game



Work with your friends to match the missing coordinate to the correct translation diagram.

(9,8)	(3,2)	(9,1)	(8,1)				
(5,8)	(4,4)	(4,1)	(2,1)				

Identifying Translated Shapes



Identifying Translated Shape
The 2D shapes are translated horizontally **or** vertically. Identify the missing position.

1.	2.	3.
4.	5.	

Identifying Translated Shapes
The 2D shapes are translated horizontally **and** vertically. Identify the missing position.

1.	2.	3.
4.	5.	6.

Identifying Translated Shapes
The 2D shapes are translated horizontally **and** vertically. Identify the missing positions.

1.	2.	3.
4.	5.	6.
7.	8.	9.

Mixed-Up Translations



Click on the shape to see it translated and then click on the speech bubbles of the child who has identified the missing coordinate correctly.

How has the other child got mixed up?

I think the missing coordinate is (2,3).



(8,10) (10,10)
A₀
(8,8) (10,8)

(?) (4,5)
A₁

I think the missing coordinate is (1,3).

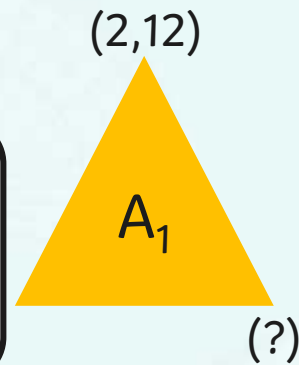


Mixed-Up Translations

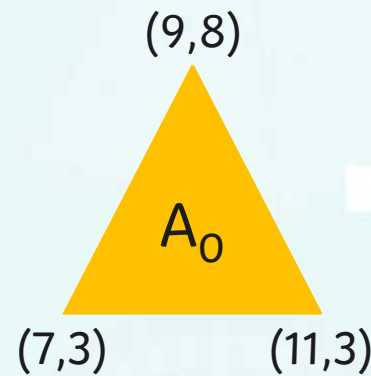


Click on the shape then the correct speech bubble.

I think the missing coordinate is (4,8).



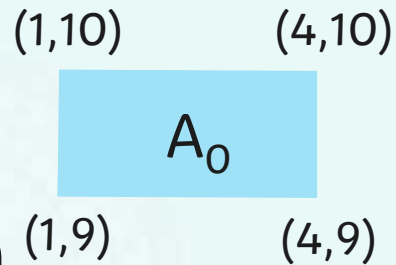
I think the missing coordinate is (4,7).



Mixed-Up Translations



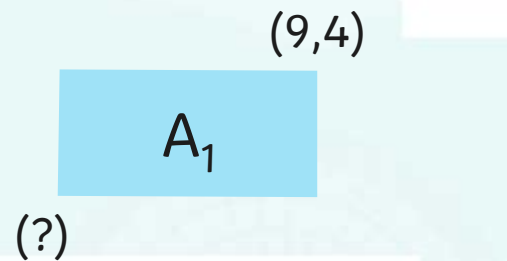
Click on the shape then the correct speech bubble.



I think the missing coordinate is (7,3).



I think the missing coordinate is (6,3).

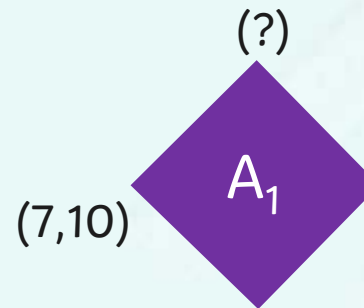


Mixed-Up Translations

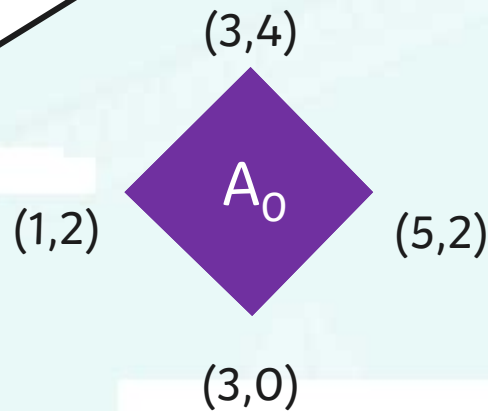


Click on the shape then the correct speech bubble.

I think the missing coordinate is (9,12).



I think the missing coordinate is (9,11).



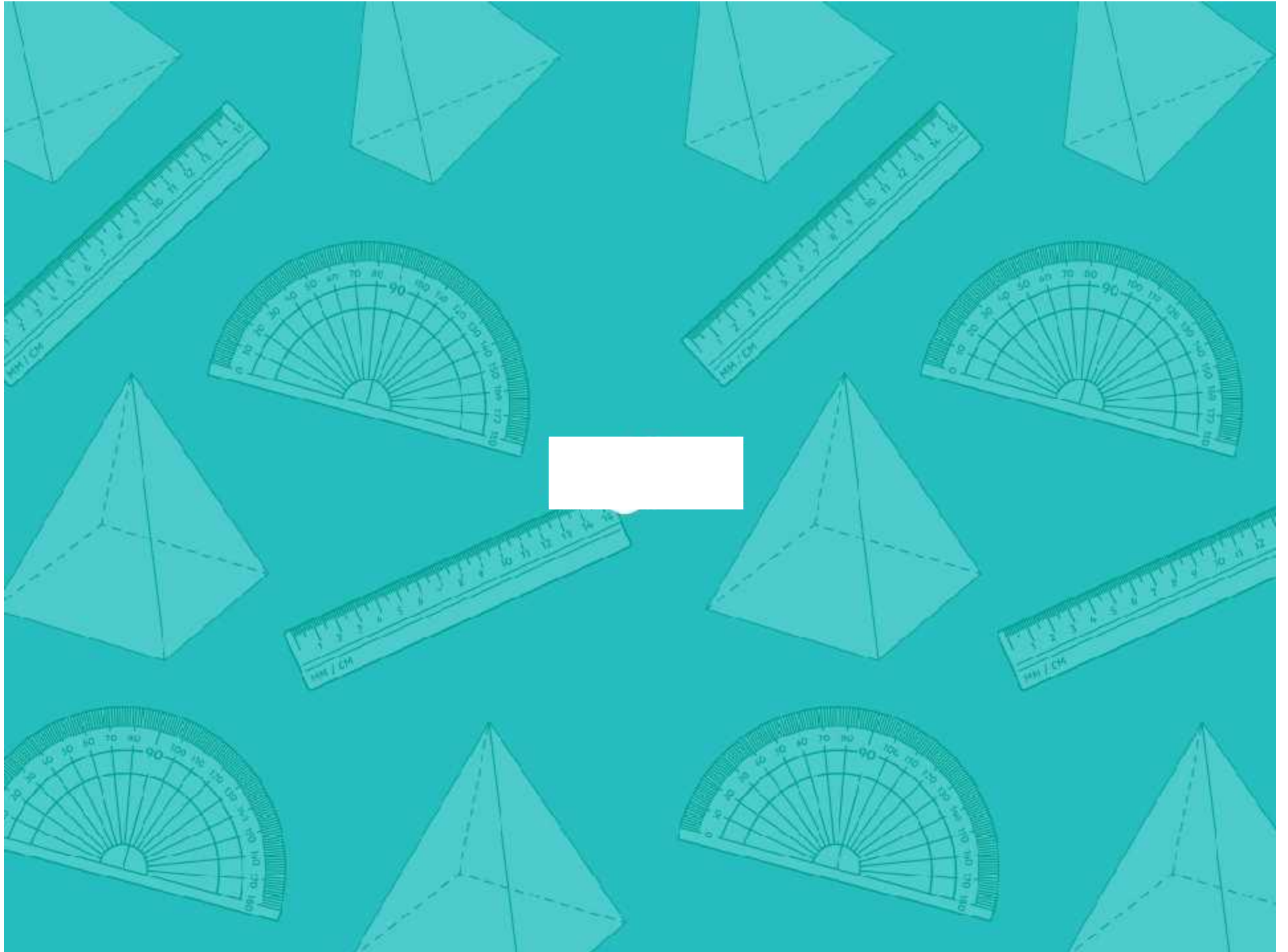
Aim



- I can identify the position of a shape following a translation.

Success Criteria

- I can read, write and plot coordinates in the first quadrant.
- I know that translation is a movement from one position to another.



Aim: I can identify the position of a shape following a translation.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can read, write and plot coordinates in the first quadrant.				Notes/Evidence					
I know that translation is a movement from one position to another.									
Next Steps									
) _____									
) _____									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice

Aim: I can identify the position of a shape following a translation.				Date:					
				Delivered By:			Support:		
Success Criteria	Me	Friend	Teacher	T	PPA	S	I	AL	GP
I can read, write and plot coordinates in the first quadrant.				Notes/Evidence					
I know that translation is a movement from one position to another.									
Next Steps									
) _____									
) _____									

T	Teacher	I	Independent
PPA	Planning, Preparation and Assessment	AL	Adult Led
S	Supply	GP	Guided Practice



Identifying Translated Shapes

The 2D shapes are translated horizontally **or** vertically. Identify the missing position.

<p>1.</p> <p>(1,2) (3,6) (5,2) (7,2) (9,6) ?</p>	<p>2.</p> <p>(1,7) ? (1,1) (5,1) (7,1) (11,1)</p>	<p>3.</p> <p>(4,8) (8,8) (4,5) (8,5) (4,3) ? (4,0) (8,0)</p>
<p>4.</p> <p>(1,7) (8,7) (3,5) (10,5) ? (8,3) (3,1) (10,1)</p>	<p>5.</p> <p>? (9,7) (2,5) (9,5) (2,3) (9,3) (2,1) (9,1)</p>	<p>6.</p> <p>(3,7) (10,7) (1,4) (5,4) (8,4) (12,4) ? (10,1)</p>
<p>7.</p> <p>(4,7) (7,7) (2,5) (9,5) (4,3) ? (2,1) (9,1)</p>	<p>8.</p> <p>(5,8) (3,6) ? (5,4) (3,2) (9,2) (5,0)</p>	<p>9.</p> <p>? (8,7) (2,5) (4,5) (7,5) (9,5) (2,2) (4,2) (7,2) (9,2)</p>



Identifying Translated Shapes

The 2D shapes are translated horizontally **and** vertically. Identify the missing position.

<p>1.</p>	<p>2.</p>	<p>3.</p>
<p>4.</p>	<p>5.</p>	<p>6.</p>
<p>7.</p>	<p>8.</p>	<p>9.</p>



Identifying Translated Shapes

The 2D shapes are translated horizontally **and** vertically. Identify the missing positions.

<p>1.</p>	<p>2.</p>	<p>3.</p>
<p>4.</p>	<p>5.</p>	<p>6.</p>
<p>7.</p>	<p>8.</p>	<p>9.</p>

Identifying Translated Shapes Answers

*

1. (11,2)
2. (7,7)
3. (8,3)
4. (1,3)
5. (2,7)
6. (3,1)
7. (7,3)
8. (9,6)
9. (3,7)

**

1. (11,1)
2. (8,8)
3. (12,4)
4. (1,3)
5. (1,7)
6. (4,1)
7. (9,3)
8. (7,6)
9. (2,8)

1. (11,3), (9,7)
2. (8,7), (12,1)
3. (12,7), (8,7), (8,4)
4. (1,3), (3,1), (6,1)
5. (4,8), (11,6), (11,8)
6. (1,3), (5,3), (3,5)
7. (1,1), (3,3), (6,3)
8. (8,4), (8,8), (12,6)
9. (9,1), (9,3), (11,1), (11,3)



Identifying Translated Shapes

The 2D shapes are translated horizontally **or** vertically. Identify the missing position.

<p>1.</p> <p>(1,2) (3,6) (5,2) (7,2) (9,6) ?</p>	<p>2.</p> <p>(1,1) (1,7) (5,1) (7,1) (11,1) ?</p>	<p>3.</p> <p>(4,5) (8,5) (4,8) (8,8) (4,0) (8,0) (8,3) ?</p>
<p>4.</p> <p>(1,7) (3,5) (3,1) (8,7) (10,5) (10,1) (8,3) ?</p>	<p>5.</p> <p>(2,5) (9,5) (9,7) (2,3) (9,3) (9,1) (2,1) ?</p>	<p>6.</p> <p>(1,4) (3,7) (5,4) (8,4) (10,7) (12,4) (10,1) ?</p>
<p>7.</p> <p>(2,5) (4,7) (7,7) (9,5) (2,1) (4,3) (x,3) (9,1)</p>	<p>8.</p> <p>(3,6) (5,8) (3,2) (5,0) (9,2) (5,4) (x,7)</p>	<p>9.</p> <p>(2,2) (2,5) (4,5) (4,2) (7,2) (7,5) (9,5) (9,2) (8,7) ?</p>



Identifying Translated Shapes

The 2D shapes are translated horizontally **and** vertically. Identify the missing position.

<p>1.</p> <p>(3,8) (1,4) (5,4) (7,1) (9,5) ?</p>	<p>2.</p> <p>(1,7) (1,1) (5,1) ? (8,2) (12,2)</p>	<p>3.</p> <p>(2,7) (6,7) (2,4) (6,4) (8,4) ? (8,1) (12,1)</p>
<p>4.</p> <p>(1,7) (3,4) ? (3,0) (9,9) (11,6) (11,2) (9,5)</p>	<p>5.</p> <p>? (8,7) (8,5) (1,5) (4,3) (11,3) (4,1) (11,1)</p>	<p>6.</p> <p>(4,7) (10,8) (2,4) (6,4) ? (8,5) (12,5) (10,2)</p>
<p>7.</p> <p>(3,7) (6,7) (1,5) (8,5) (6,3) ? (4,1) (11,1)</p>	<p>8.</p> <p>(3,8) (1,6) (3,4) (7,4) ? (5,2) (7,0) (11,2) (7,4)</p>	<p>9.</p> <p>? (1,6) (3,6) (1,3) (3,3) (10,6) (9,4) (11,4) (9,1) (11,1)</p>



Identifying Translated Shapes

The 2D shapes are translated horizontally **and** vertically. Identify the missing positions.

<p>1.</p>	<p>2.</p>	<p>3.</p>
<p>4.</p>	<p>5.</p>	<p>6.</p>
<p>7.</p>	<p>8.</p>	<p>9.</p>

Identifying Translated Shapes Answers

*

1. (11,2)
2. (7,7)
3. (8,3)
4. (1,3)
5. (2,7)
6. (3,1)
7. (7,3)
8. (9,6)
9. (3,7)

**

1. (11,1)
2. (8,8)
3. (12,4)
4. (1,3)
5. (1,7)
6. (4,1)
7. (9,3)
8. (7,6)
9. (2,8)

1. (11,3), (9,7)
2. (8,7), (12,1)
3. (12,7), (8,7), (8,4)
4. (1,3), (3,1), (6,1)
5. (4,8), (11,6), (11,8)
6. (1,3), (5,3), (3,5)
7. (1,1), (3,3), (6,3)
8. (8,4), (8,8), (12,6)
9. (9,1), (9,3), (11,1), (11,3)

(9,8)

(3,2)

(5,8)

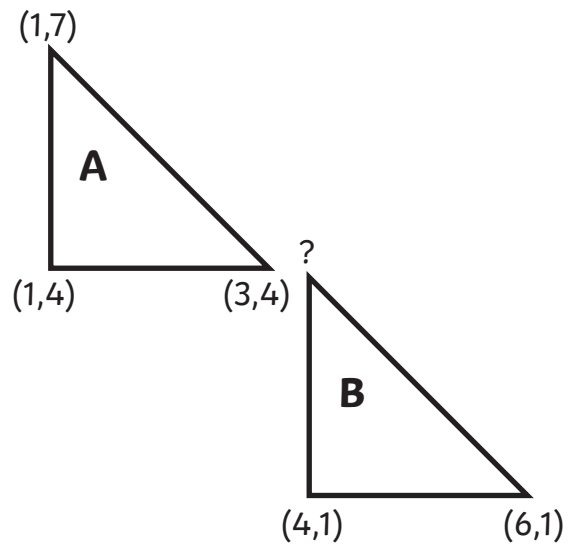
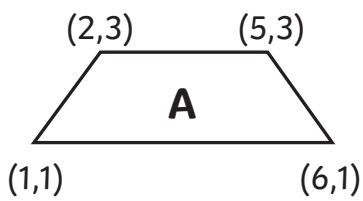
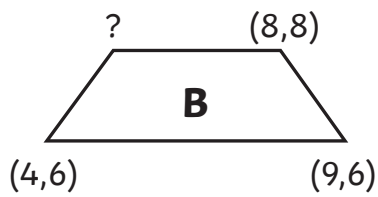
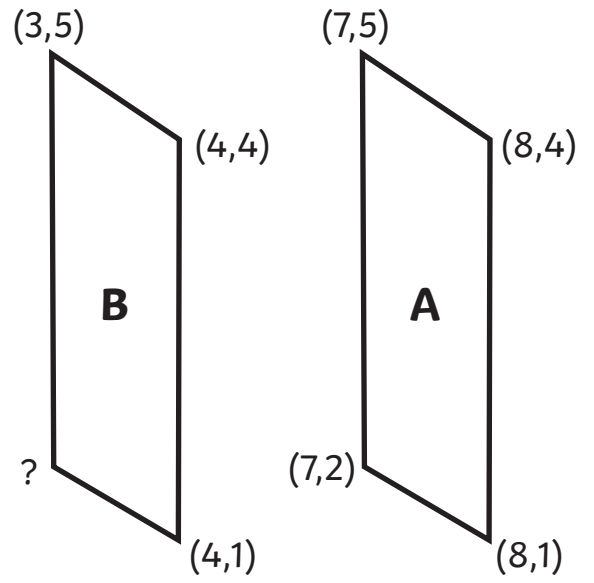
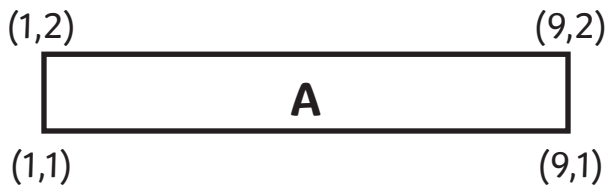
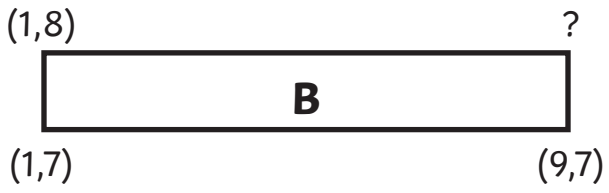
(4,4)

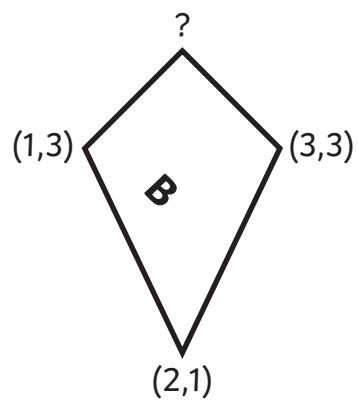
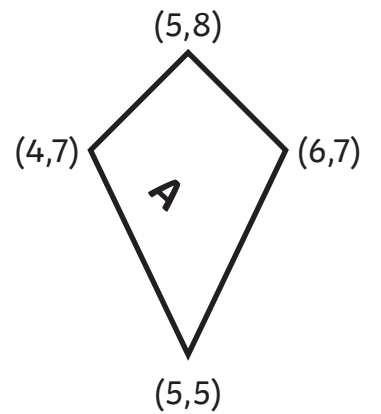
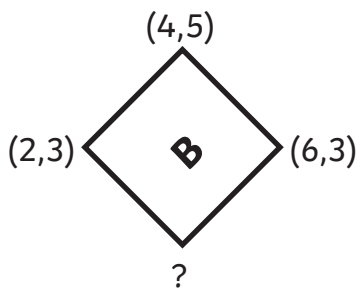
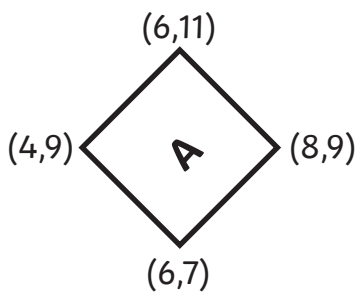
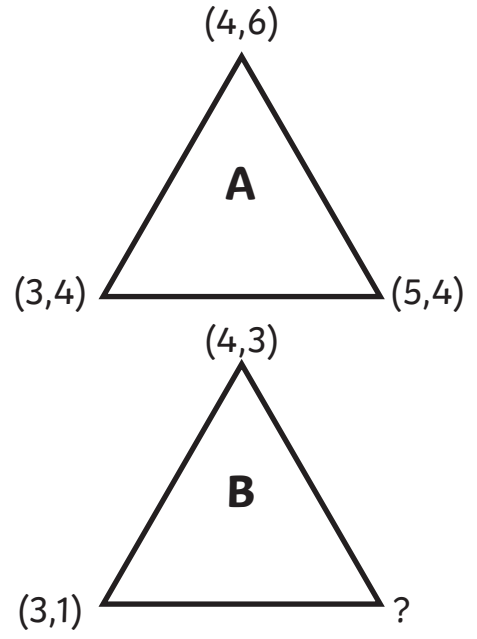
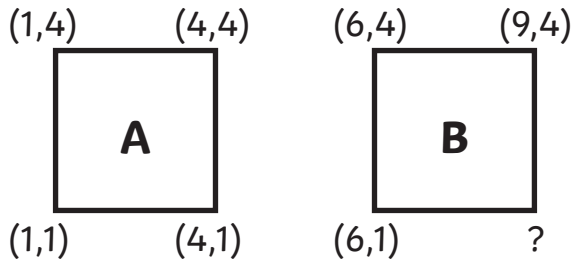
(9,1)

(5,1)

(4,1)

(2,4)





(9,8)

(3,2)

(5,8)

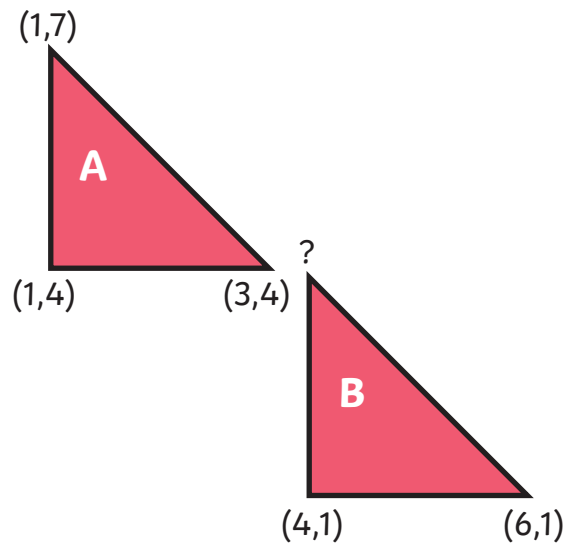
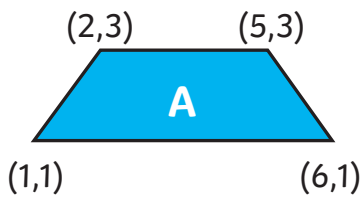
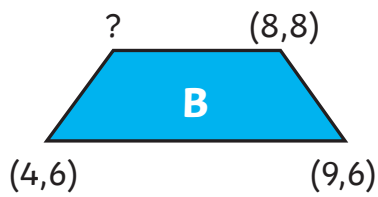
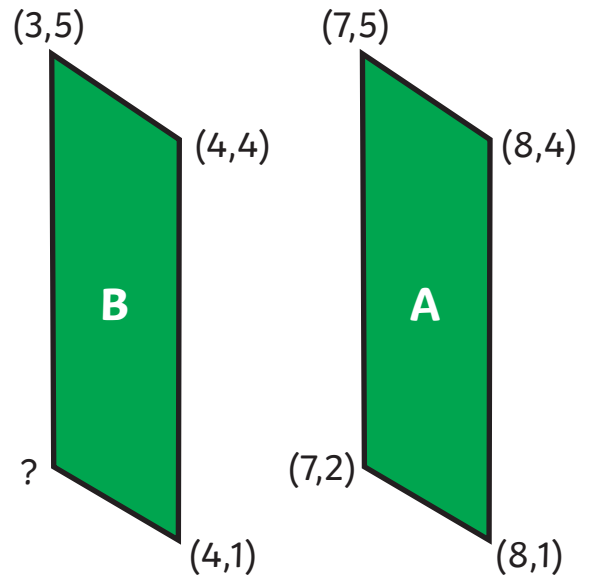
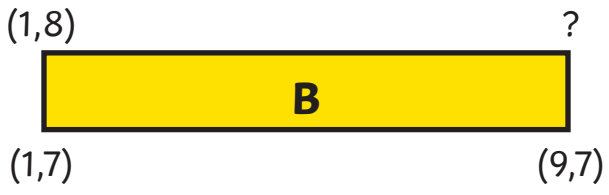
(4,4)

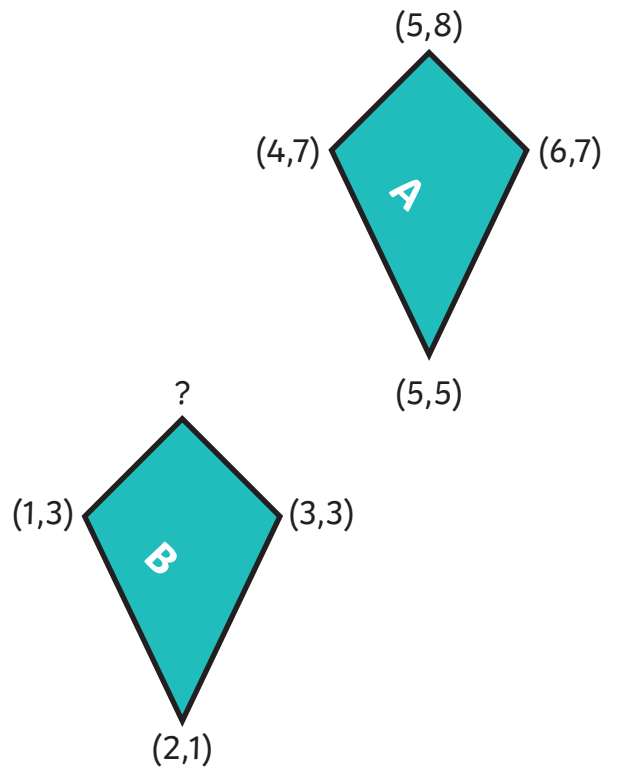
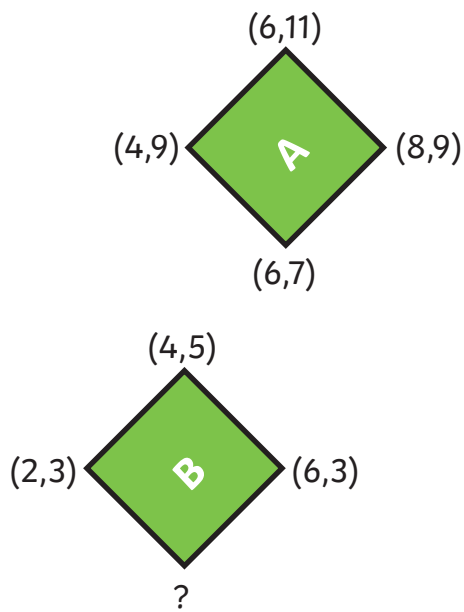
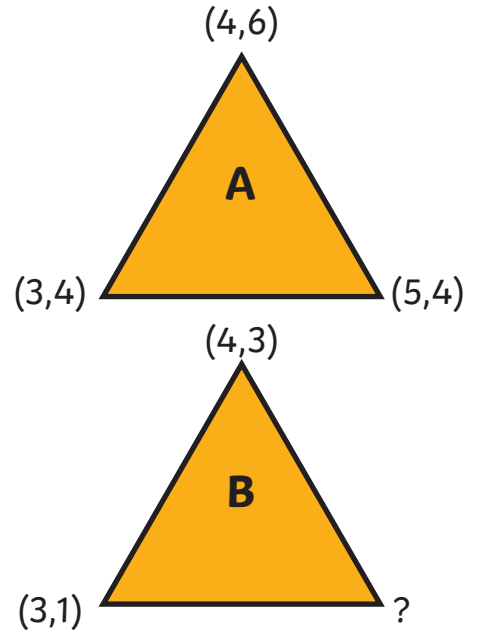
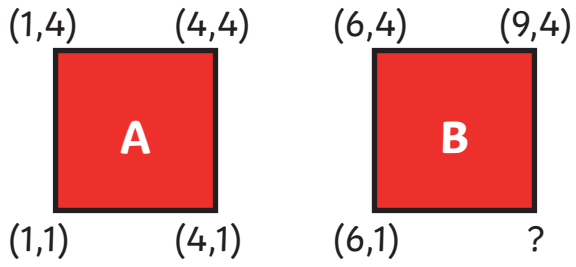
(9,1)

(5,1)

(4,1)

(2,4)





Measurement and Geometry | Identifying Translated Shapes

I can identify the position of a shape following a translation.		
I can read, write and plot coordinates in the first quadrant.		
I know that translation is a movement from one position to another.		

Measurement and Geometry | Identifying Translated Shapes

I can identify the position of a shape following a translation.		
I can read, write and plot coordinates in the first quadrant.		
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Measurement and Geometry | Identifying Translated Shapes

I can identify the position of a shape following a translation.		
I can read, write and plot coordinates in the first quadrant.		
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