



THIRD SPACE  
LEARNING



# HELLO!

Today we are going to revise  
geometry – Transformations (translation &  
reflection)

## Arithmetic Warm Up

Draw as many lines of symmetry as you can find on these shapes.



# Revision on Position and Direction



First we are going to revise:



transformations (translation, reflection)

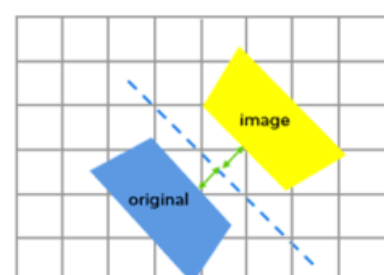
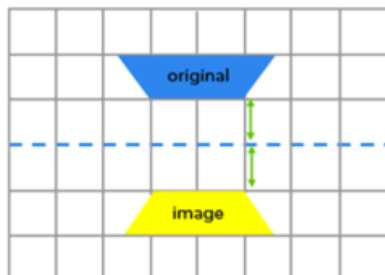
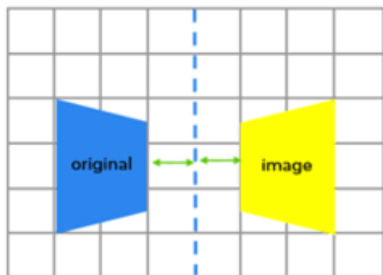
# Revision: Transformations

Transformations are ways of changing or moving shapes.

We are revising two forms of transformations:

1. Reflection
2. Translation

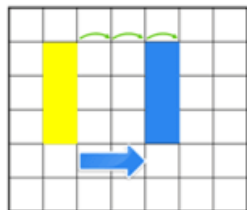
## 1. Reflection – change position by flipping (mirror line) but not turning



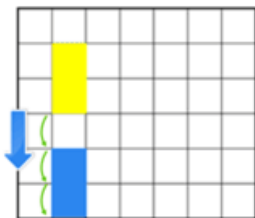
# Revision: Transformations

## 2. Translation

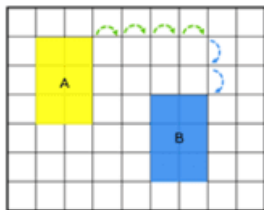
Change position by moving or sliding but not changing size or turning it.



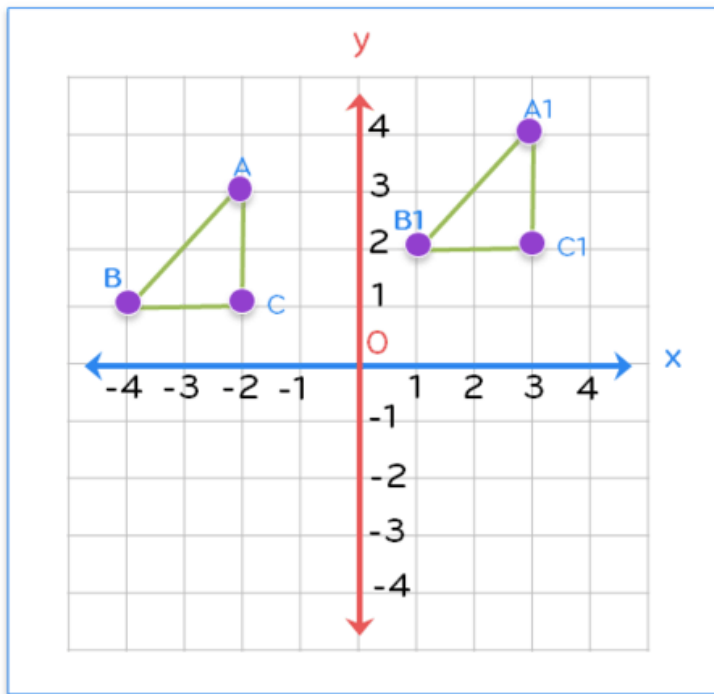
Horizontal translation




Vertical translation




Diagonal translation



Triangle ABC has been translated to a new position  $A_1B_1C_1$ .

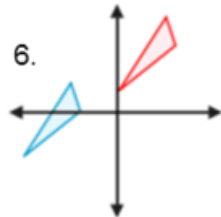
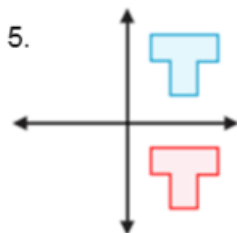
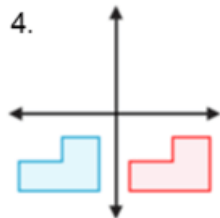
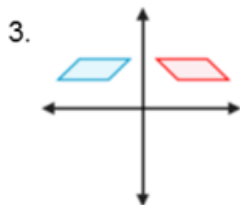
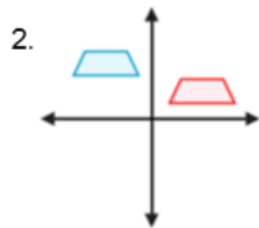
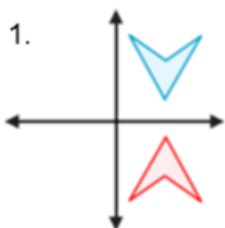
 How many squares to the right has it moved?

 How many squares up has it moved?

# Revision: Transformations

Say if the following is a:

- 1) Translation
- 2) Reflection

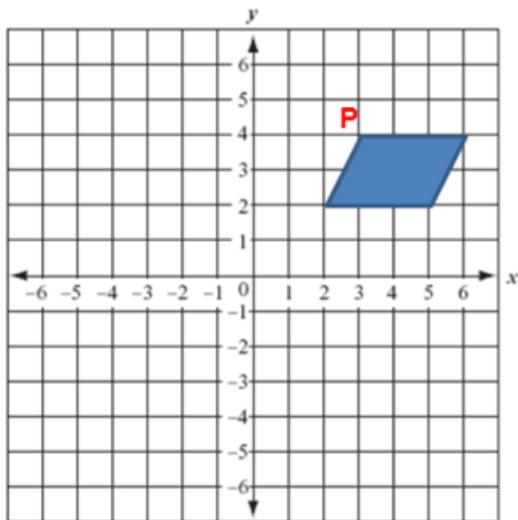


# Question 1



Complete

Draw the position of the parallelogram after the translation of 7 squares left and 6 squares down.



Write down the new coordinates of point P.

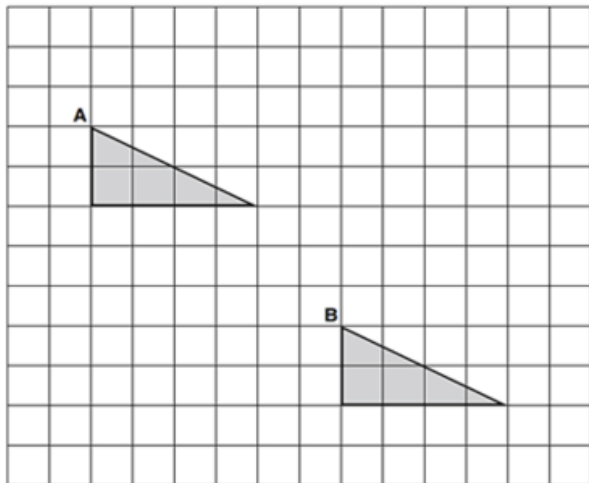
(      ,      )

1. What do you notice?
2. What do you know?
3. Can you show your working out?
4. How could you extend the question?



## Question 2

A triangle is translated from position A to position B.



Complete the sentence.

The triangle has moved  squares to the right

and  squares down.

1. What do you notice?
2. What do you know?
3. Can you show your working out?
4. How could you extend the question?

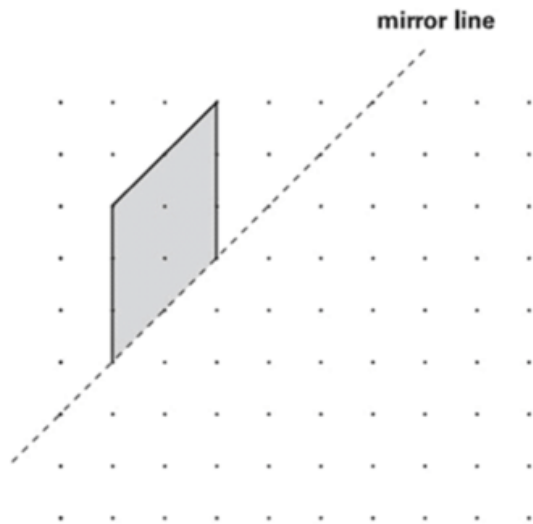


## Question 3



Complete


Draw the **reflection** of the shape in the **mirror line**.  
Use a ruler.



1. What do you notice?
2. What do you know?
3. Can you show your working out?
4. How could you extend the question?

## Let's review:



-  Can identify, describe and represent the position of a shape following a translation or a reflection.

Draw a circle around the smiley face to show how you feel about what we've just been doing.





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Complete

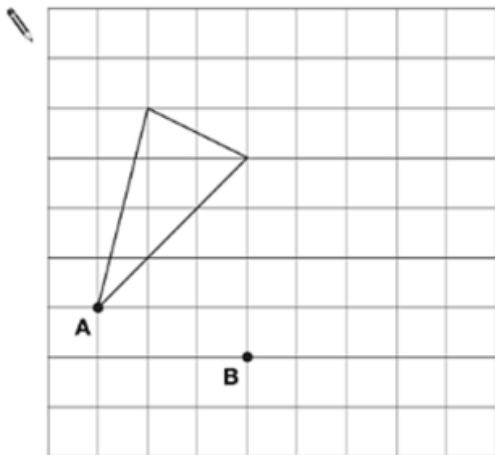
## CHALLENGE

Here is a triangle on a square grid.

The triangle is translated so that point **A** moves to point **B**.

Draw the triangle in its new position.

Use a ruler.



1. What do you notice?
2. What do you know?
3. Can you show your working out?
4. How could you extend the question?



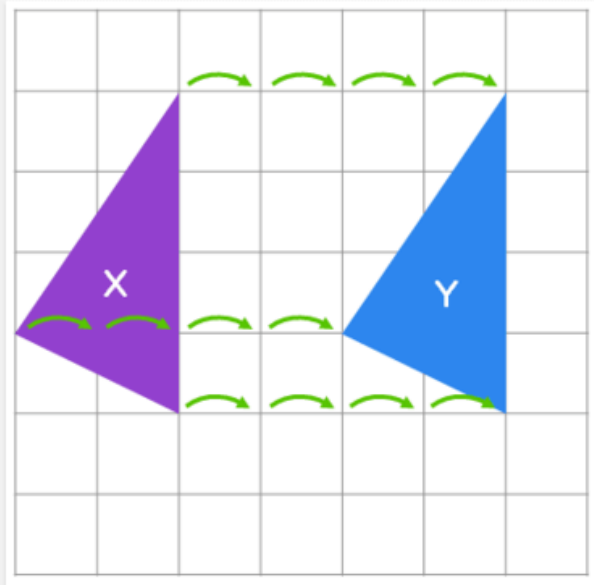
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## Translation

- A **translation** is a sliding movement.
- A translation can be to the left or right, up or down, or a combination of these.

### Example:

Shape **X** is translated to position **Y**.



Each corner has moved  units to the  to make a new triangle at position **Y**.



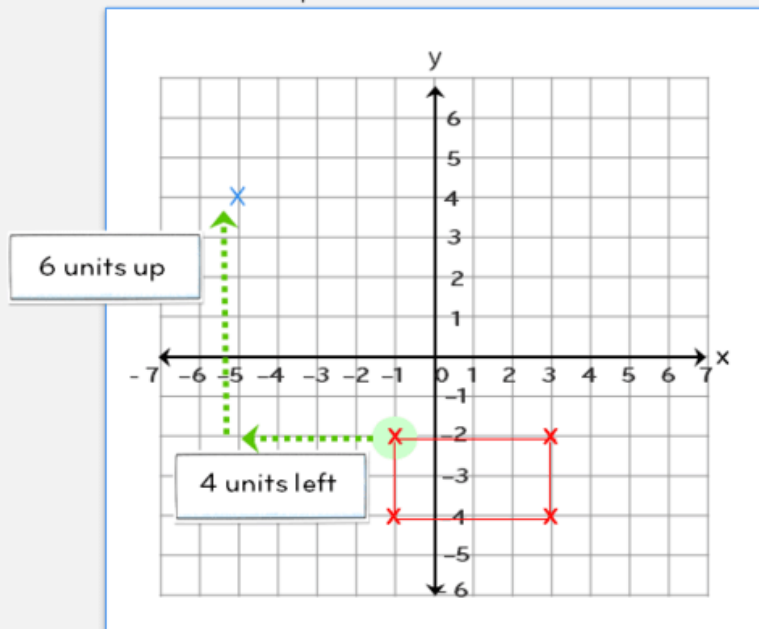
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## Translating a shape

These points have been plotted:  $(-1, -3)$ ,  $(-1, -5)$ ,  $(3, -5)$ ,  $(3, -3)$ .

What shape has been drawn?

Translate the shape 4 units to the left and 6 units up.



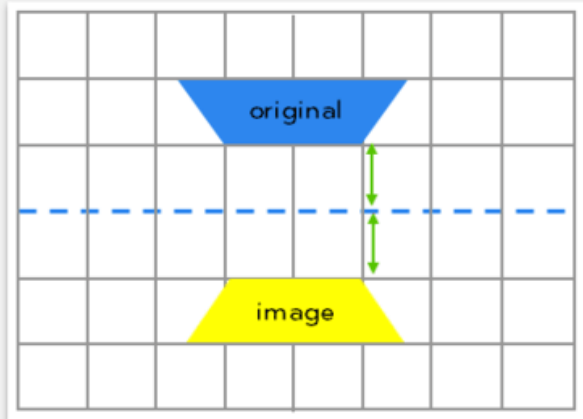
Coordinates of new shape  $(-5, 3)$ , (      ,      ), (      ,      ), (      ,      )



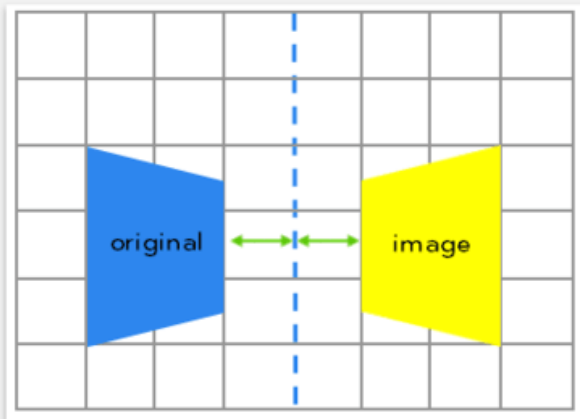
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# Reflection

- **Reflection** is a mirror image of any object.
- A vertical reflection has a horizontal mirror line.
- A horizontal reflection has a vertical mirror line.



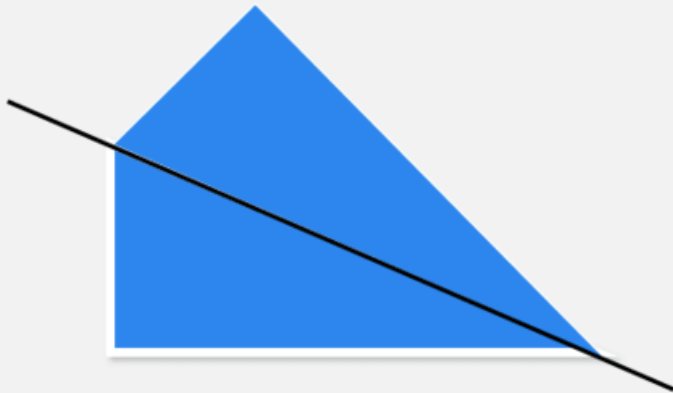
A vertical reflection



A horizontal reflection

# Identify all lines of symmetry in 2D shapes

What is wrong with putting a line like this?



# Complete simple symmetric figures with regard to specific lines of symmetry



Shade in squares to make the black line a line of symmetry.

