Warm your brains up thinking about the following questions:

Warm Up Challenge

1.   Tick the correct statements.

   a)   In a scalene triangle, two of the angles are the same size.   ☐

   b)   An equilateral triangle has three sides of equal length.   ☐

   c)   An isosceles triangle has three equal angles.   ☐

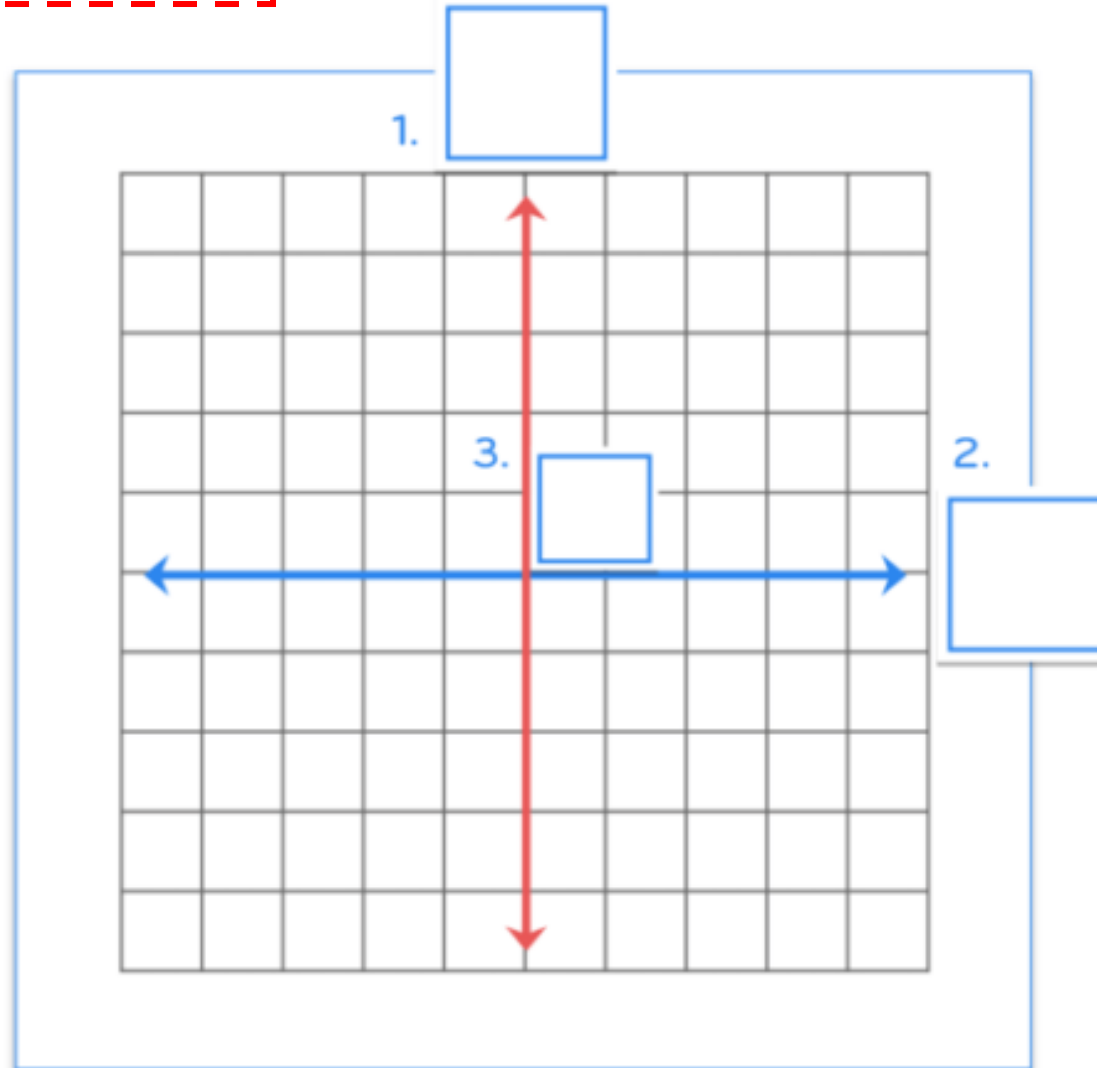2.   Match the triangles to the names. One triangle matches two names.

scalene

equilateral

right-angled

isosceles   ☐

Where would you position the 'x', 'y' and '0' ?

Axes and origin
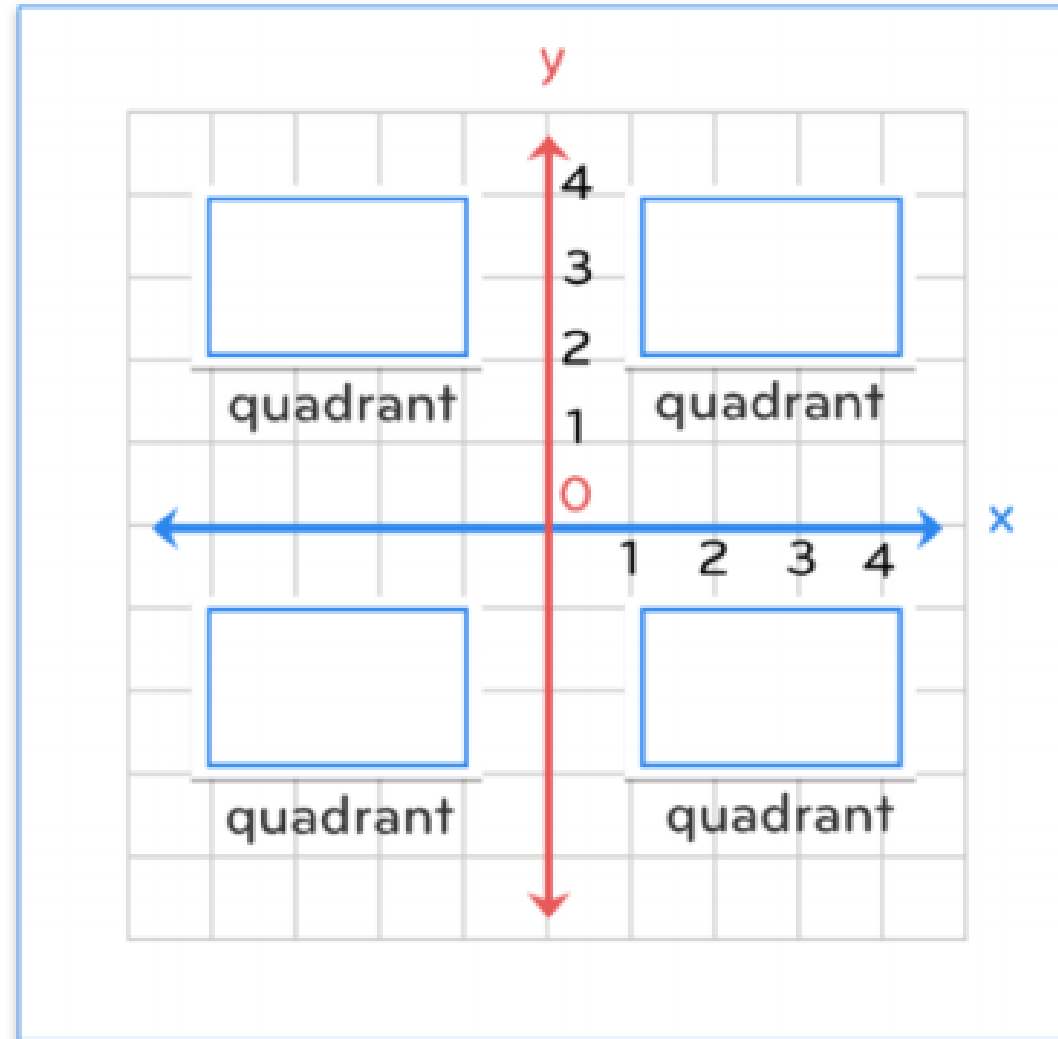
1.

3.

2.

x

y

O

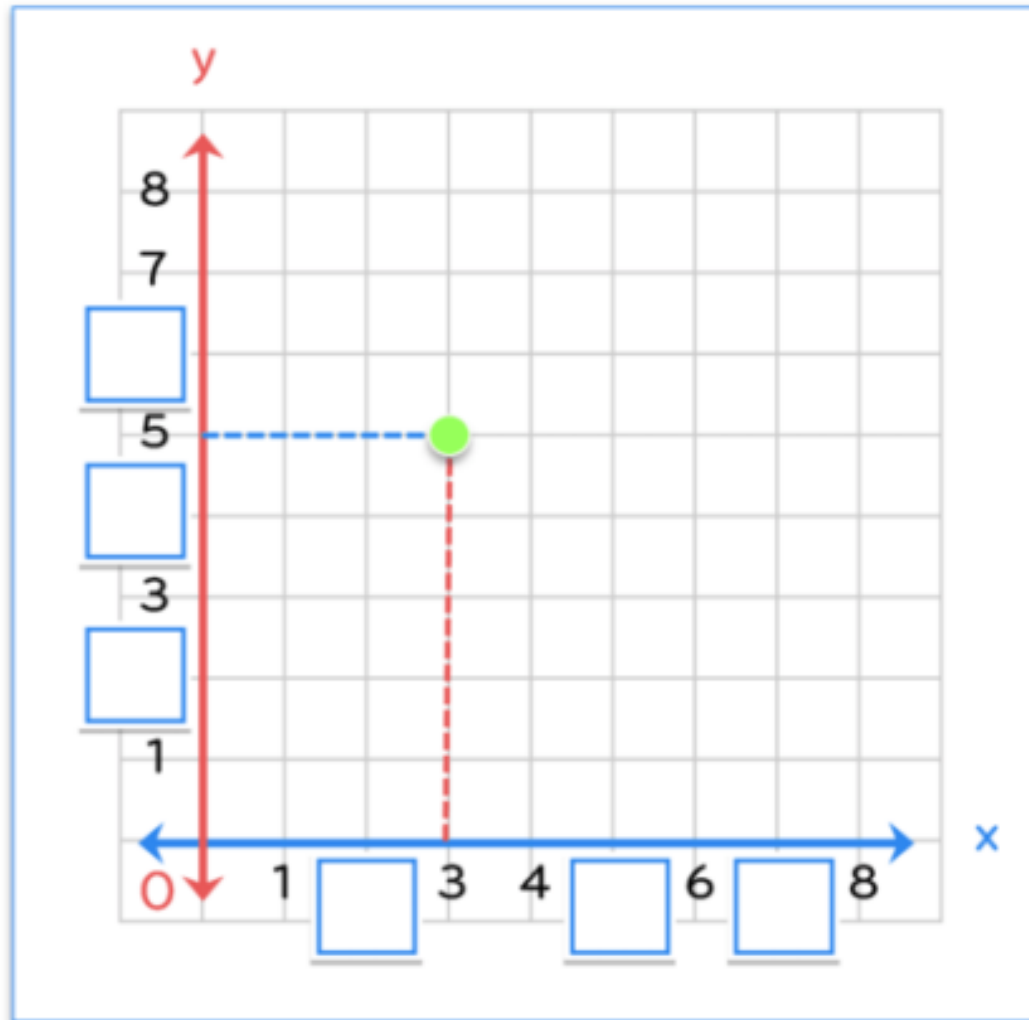**Locate the 1st, 2nd, 3rd and 4th quadrant**

The four quadrants

1. Label the quadrants using:

   1st

   2nd

   3rd

   4th

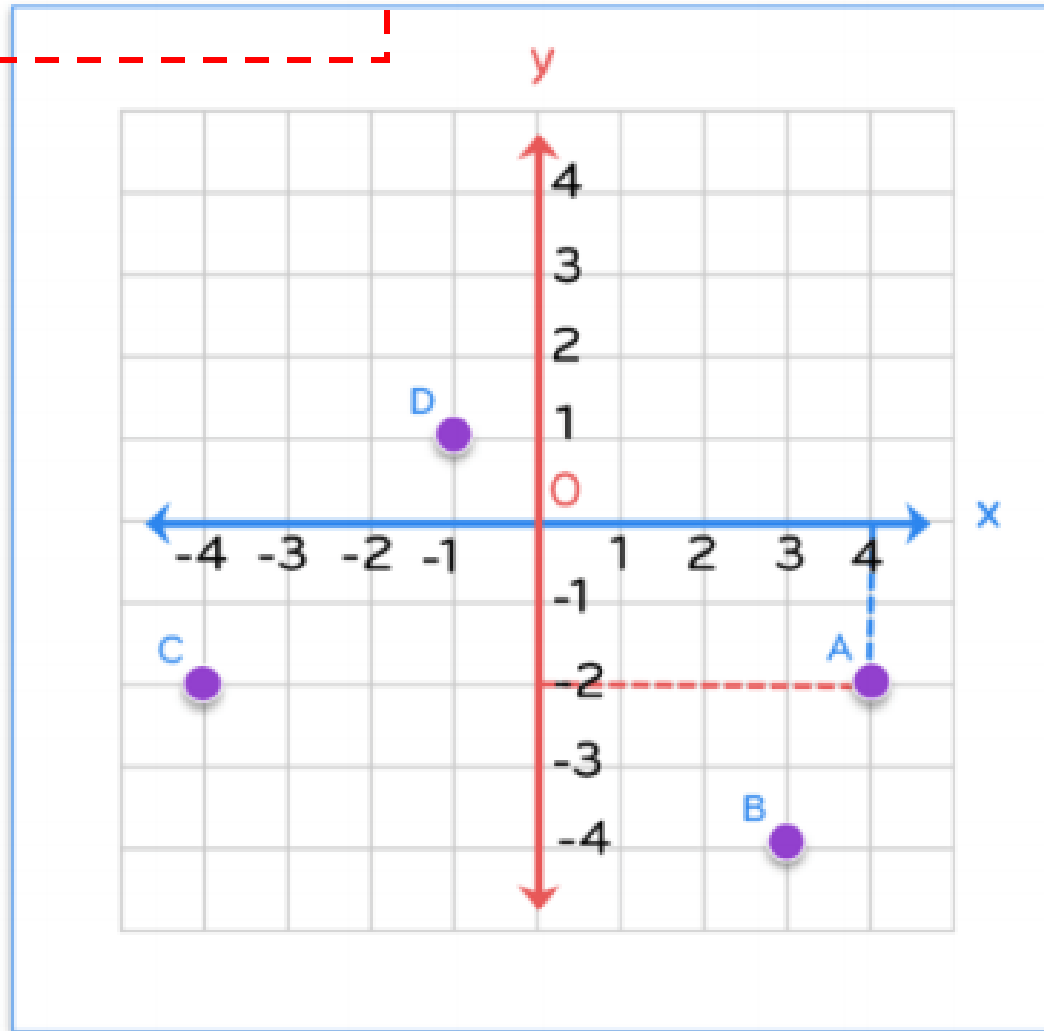**What would you write in the blue boxes?**

Grid: 1st Quadrant

coordinates of a point.

(x, y)

(☐ , ☐)

Along the corridor and up the stairs

What would you write in the blue boxes?

(x-value , y-value)
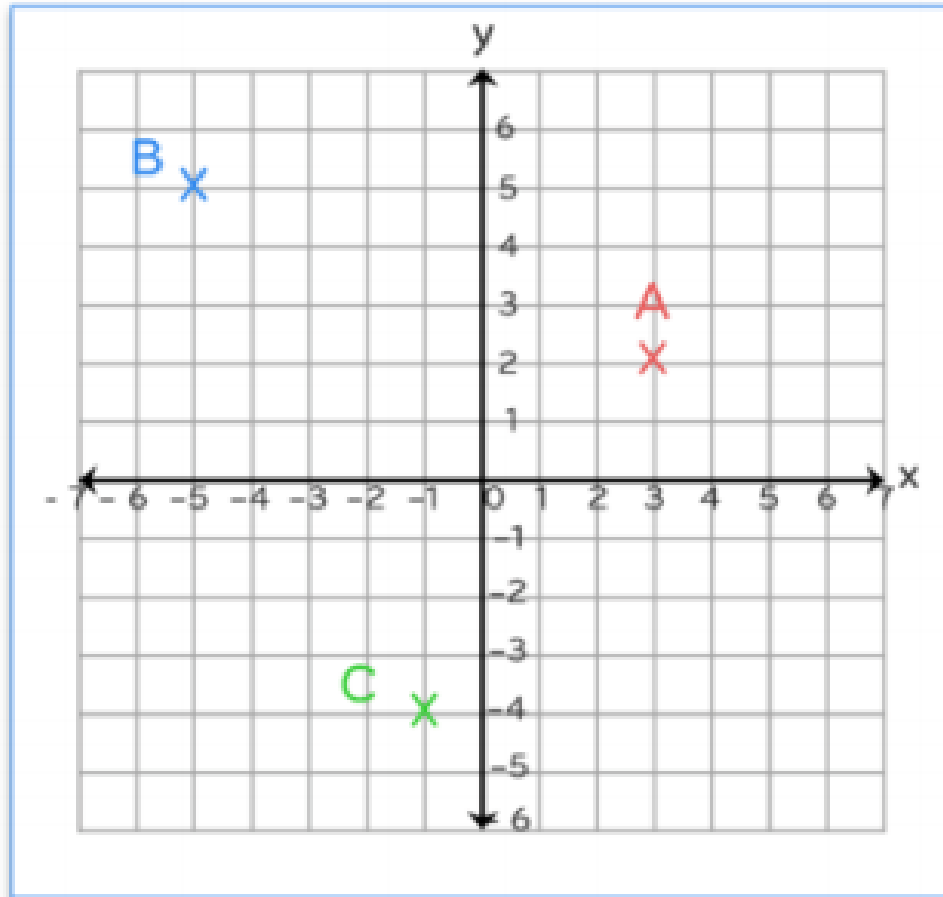
A (4, −2)

B (☐ , ☐)

C (☐ , ☐)

D (☐ , ☐)

It's <u>still</u> along the corridor *but* then up or down the stairs

What would you write in the blue boxes?

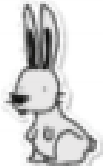Coordinates for A: (☐ , ☐)

Coordinates for B: (☐ , ☐)

Coordinates for C: (☐ , ☐)

It's <u>still</u> along the corridor *but* then up or down the stairs

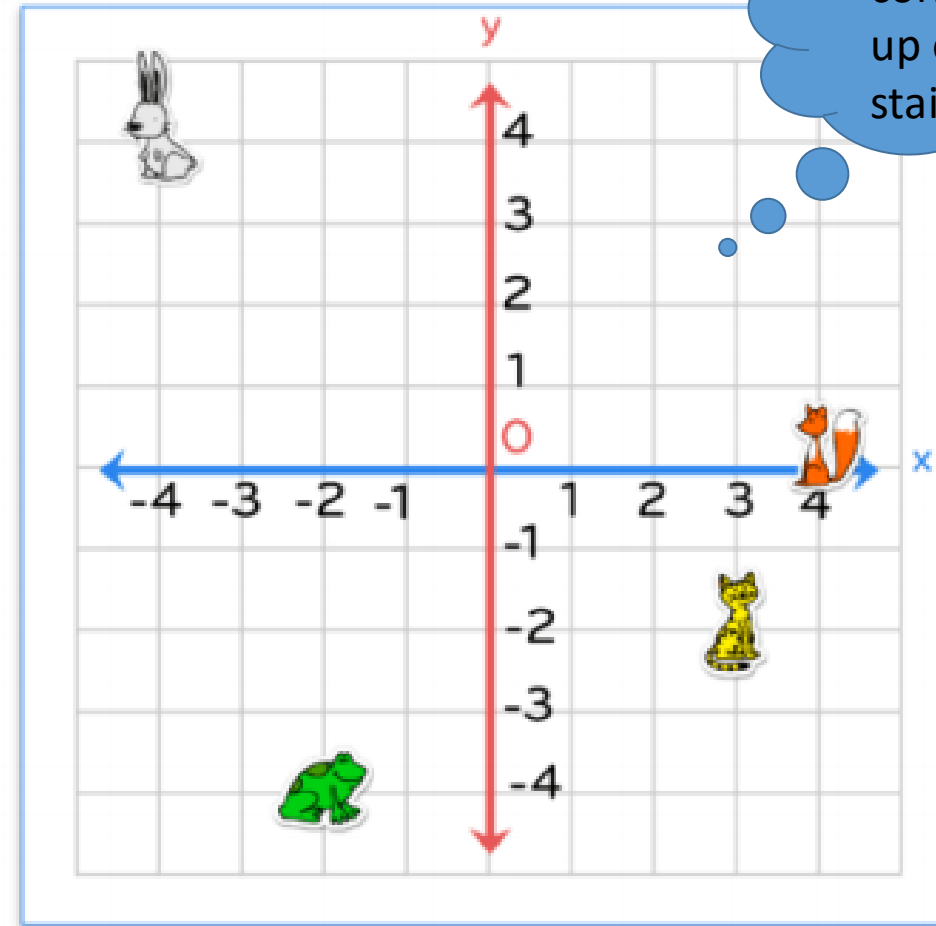**What are the coordinates for the following items?**

It's <u>still</u> along the corridor *but* then up or down the stairs

1. Write the coordinates of the:

a) frog (⬜ , ⬜)

b) rabbit (⬜ , ⬜)

c) tiger (⬜ , ⬜)

d) dog (⬜ , ⬜)

Transformations

Transformations are ways of changing or moving shapes.

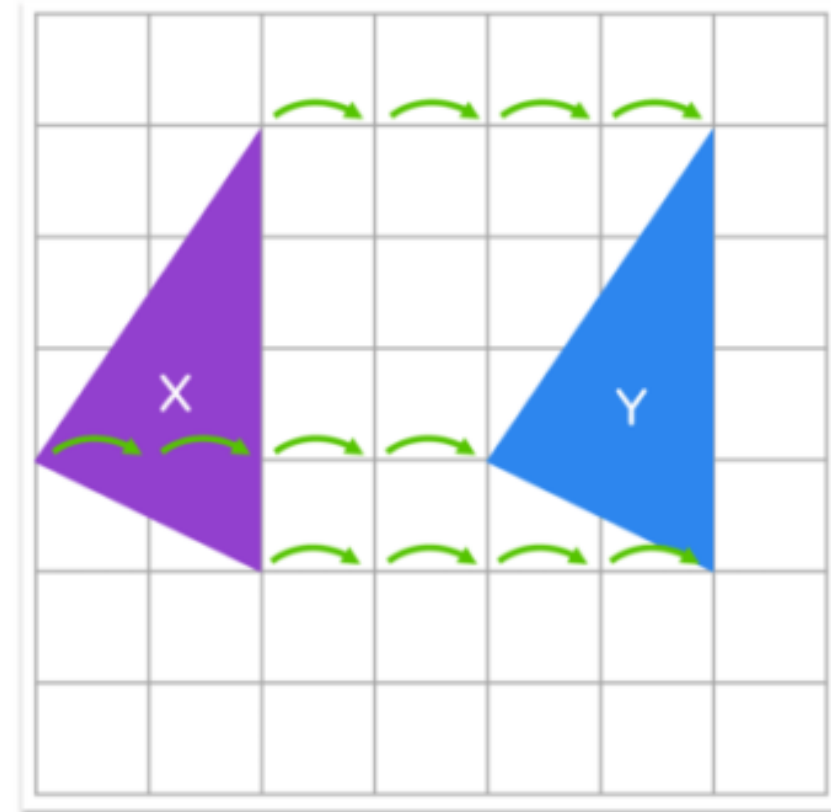There are different types of transformation, for example,

- Translation

- Reflection

- Rotation

We will only look at Translation and Reflection in this lesson though!

Translation

- A **translation** is a sliding movement.

- A translation can be to the left or right, up or down, or a combination of these.
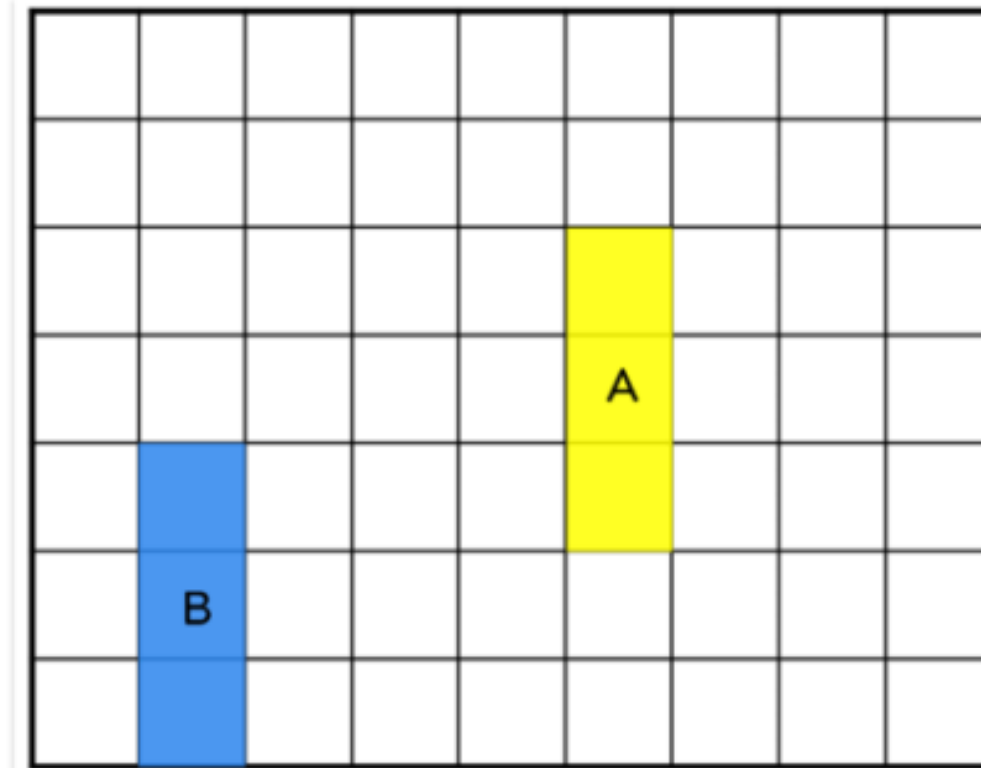
Example:

Shape X is translated to position Y.

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

What is missing?

Translation

How would you describe the translation?

Describe the translation from

shape **A** to position **B**.

[　　　] units to the [　　　　] [　　] [　　　　]
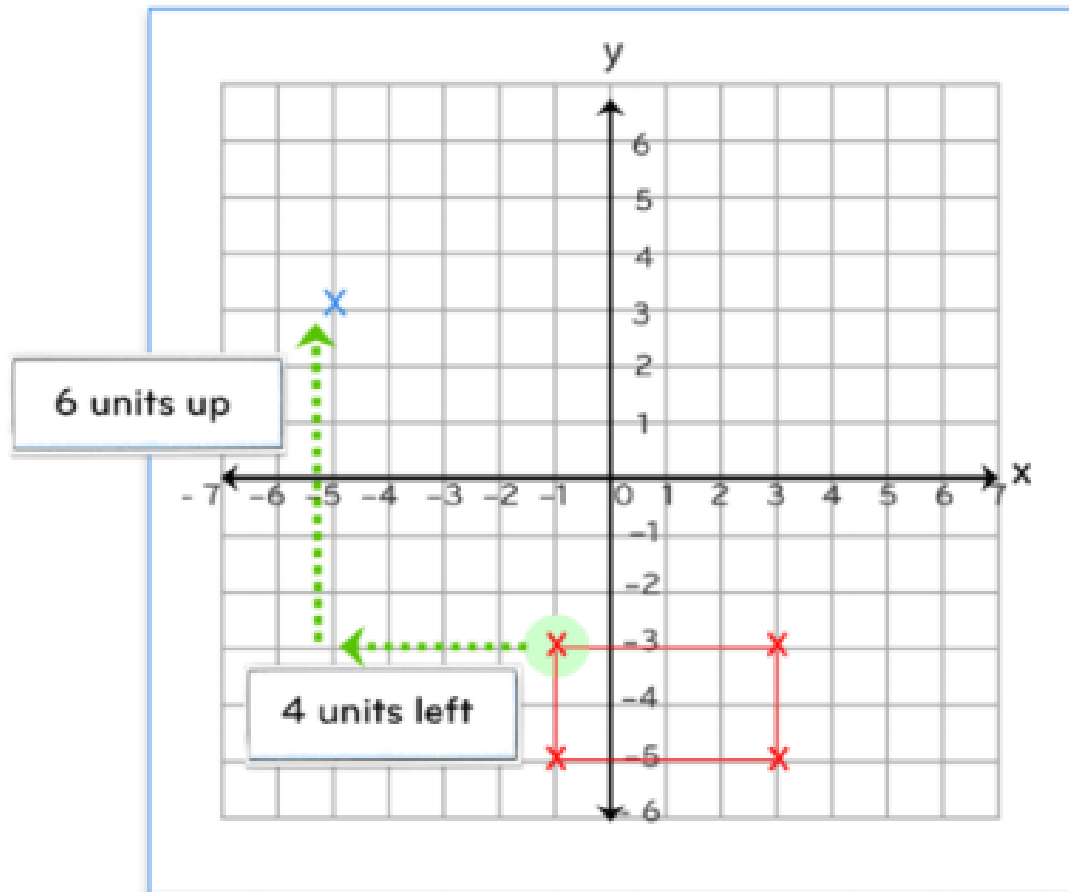
What are the new coordinates?

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.
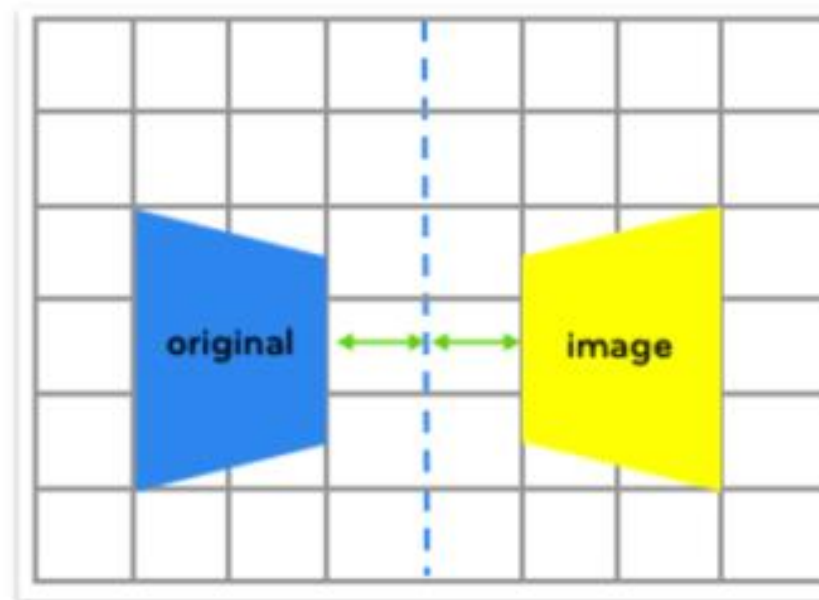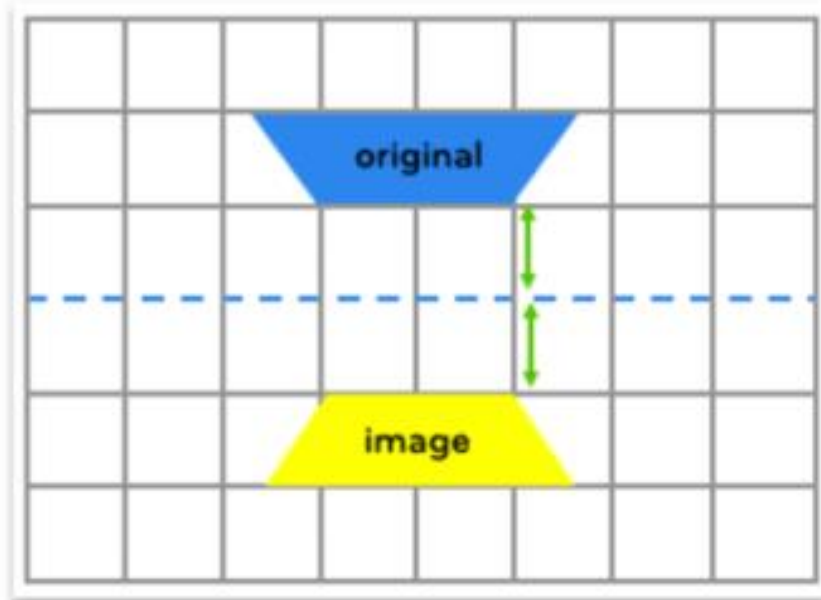

6 units up

4 units left

Think:
Take each vertex one at a time. The object and its image should be exactly the same shape and size.

Coordinates of new shape (–5, 3), (,   ), (,   ), (,   )

Reflection

- **Reflection** is a mirror image of any object.
- You 'flip' the object over a line called the **line of reflection**
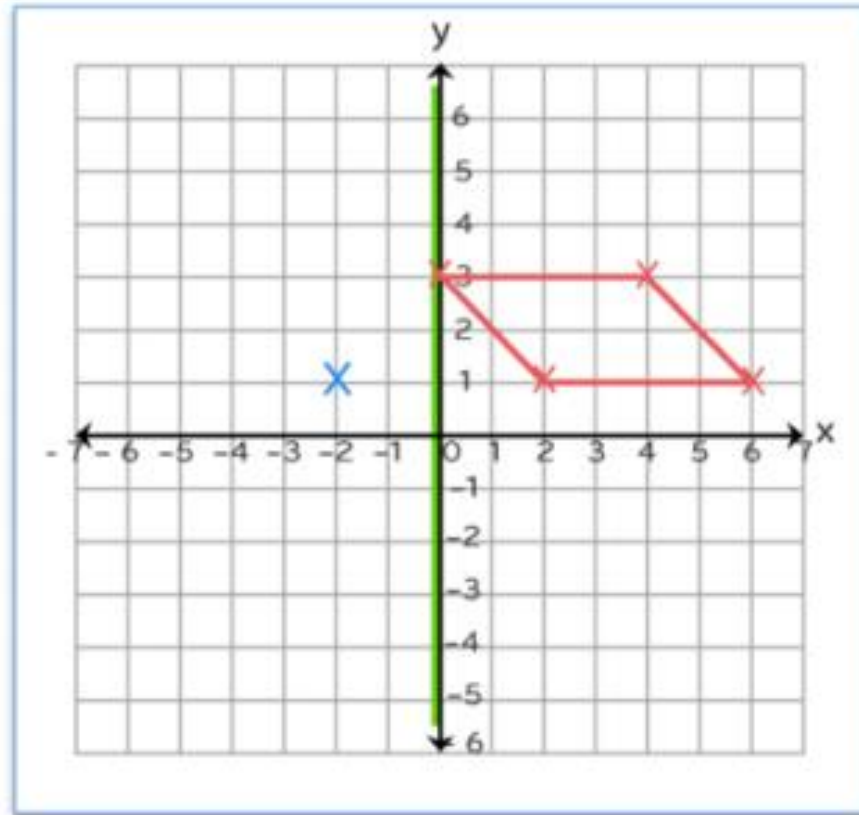
What are the new coordinates?

Reflecting a shape in the y axis

Reflect the shape in the y axis.

Give the coordinates of the new shape.

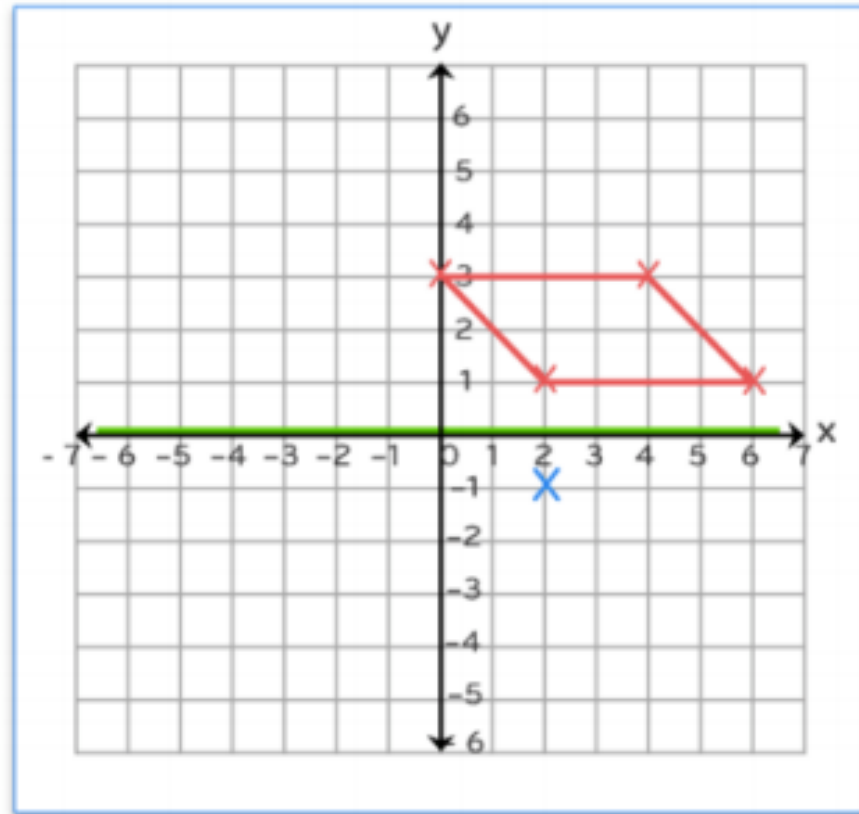Think: Take each vertex one at a time. The new vertex will be the same distance from the axes on the other side.

Coordinates of new shape (−2, 1), (,   ), (,   ), (,   )

What are the new coordinates?

Reflecting a shape in the x axis

Reflect the shape in the x axis.

Give the coordinates of the new shape.

Think: Take each vertex one at a time. The new vertex will be the same distance from the axes on the other side.

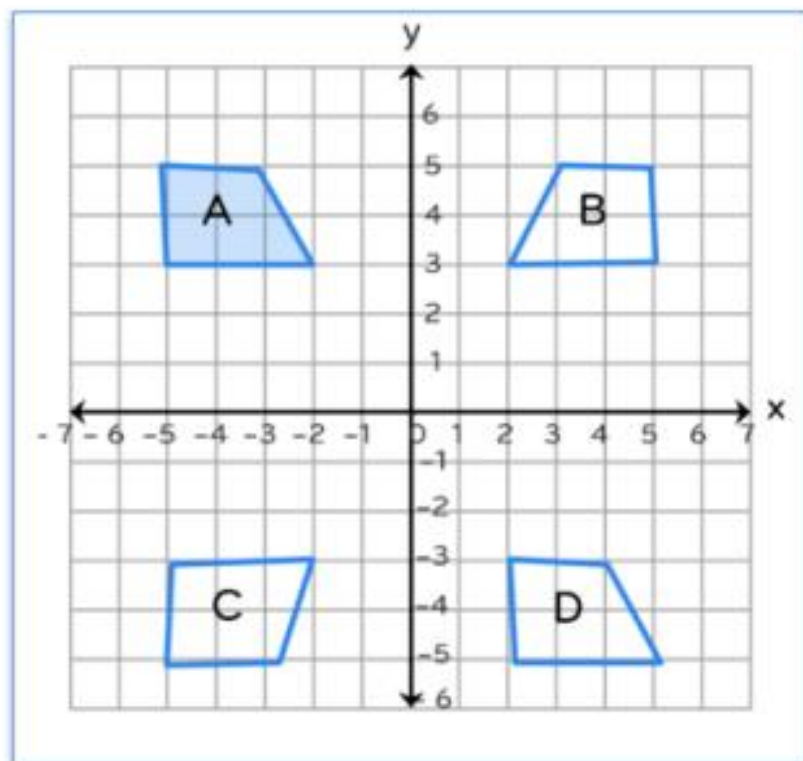Coordinates of new shape (2, -1), (,   ), (,   ), (,   )

Now lets see how much you can remember...

Practice time

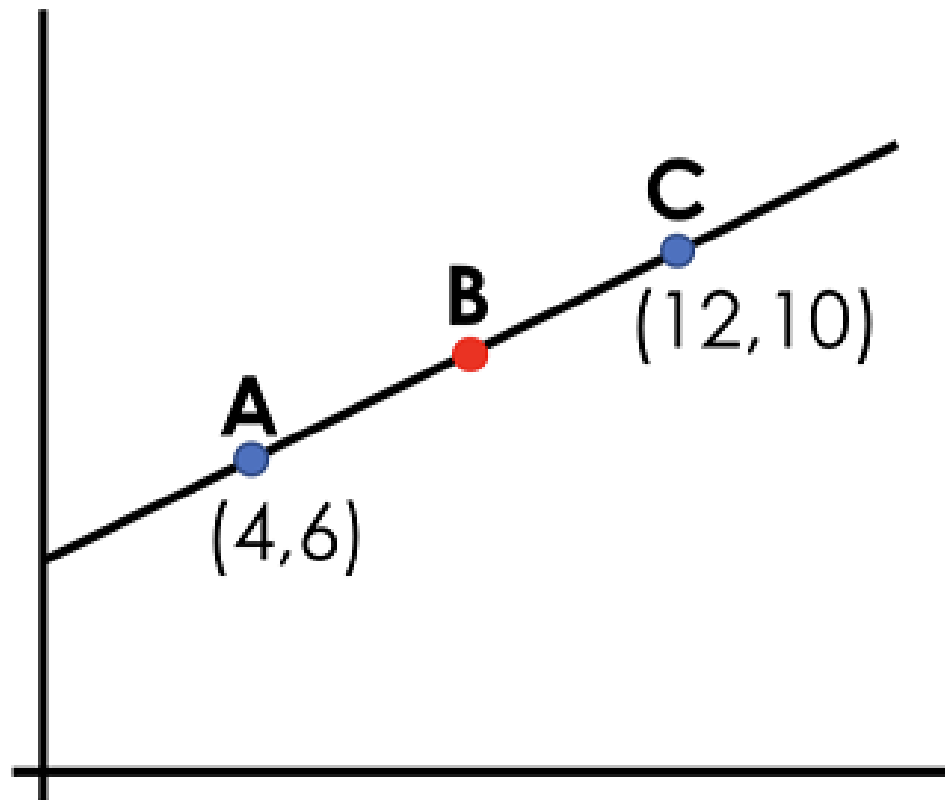a) Plot which shape shows a reflection of shape A in the x axis?

b) Which shape shows a reflection of shape A in the y axis?

c) Which shape shows a translation of shape A

Point B is half-way between points A and C.

C
(12,10)

B

A
(4,6)

Calculate the coordinates of Point B.

(6,5)

Explain the mistake

Explain the mistake

Calculate the coordinates of Point D.

(3,11)

↑

Explain the mistake