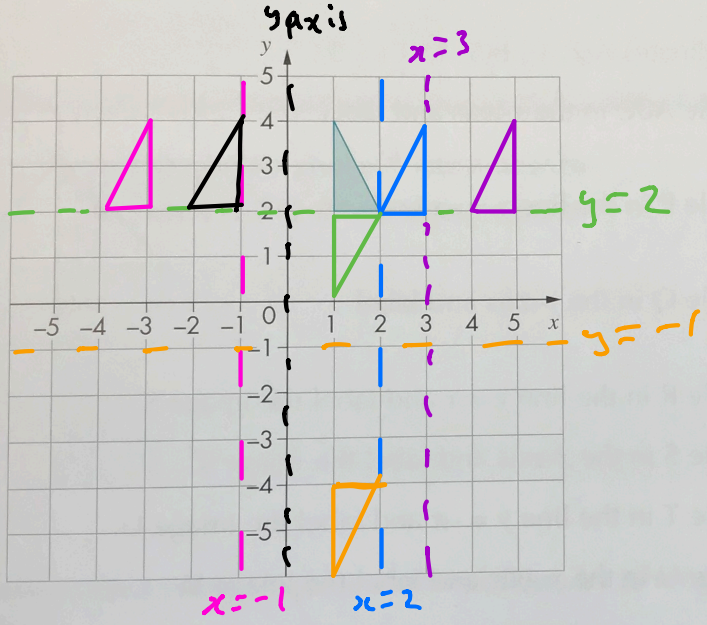
Reflections

1 Copy the diagram below and draw the reflection of the given triangle in the following lines.

a $x = 2$ **b** $x = -1$ **c** $x = 3$ **d** $y = 2$ **e** $y = -1$ **f** y-axis



2 **a** Draw a pair of axes, x-axis from –5 to 5, y-axis from –5 to 5.

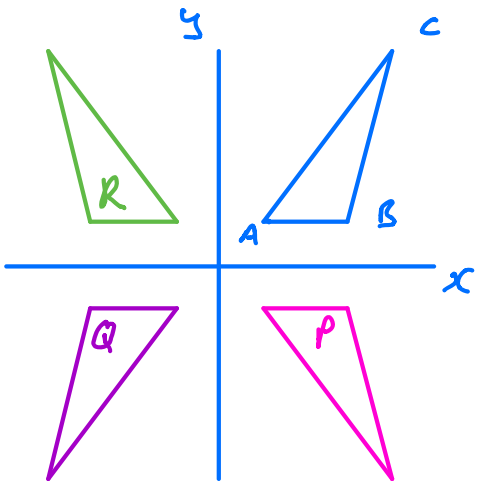
b Draw the triangle with coordinates A(1, 1), B(3, 1), C(4, 5).

c Reflect the triangle ABC in the x-axis. Label the image P.

d Reflect triangle P in the y-axis. Label the image Q.

e Reflect triangle Q in the x-axis. Label the image R.

f Describe the reflection that will move triangle ABC to triangle R.



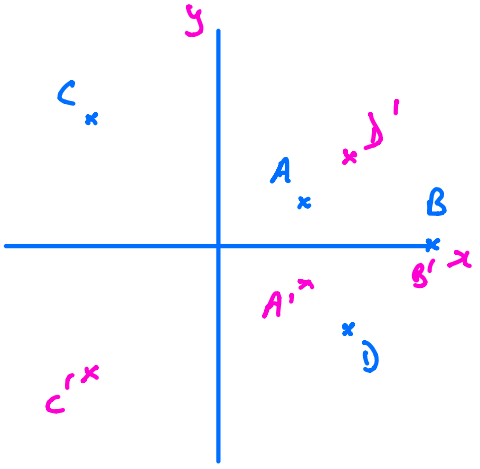
Reflect △ABC in y-axis to get R

3 **a** Draw a pair of axes, x-axis from –5 to +5 and y-axis from –5 to +5.

b Reflect the points A(2, 1), B(5, 0), C(–3, 3), D(3, –2) in the x-axis.

c What do you notice about the values of the coordinates of the reflected points?

d What would the coordinates of the reflected point be if the point (a, b) were reflected in the x-axis?

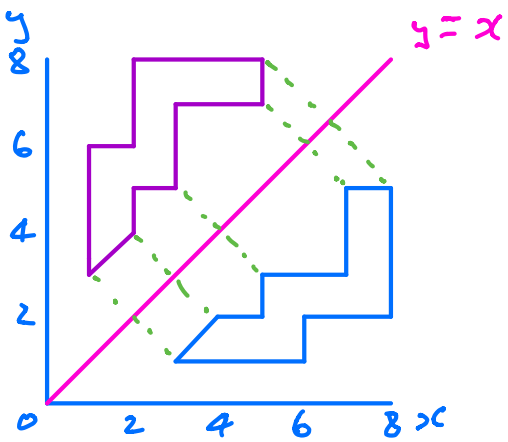


A(2,1) A'(2,-1)
B(5,0) B'(5,0)
C(-3,3) C'(-3,-3)
D(3,-2) D'(3,2)

When a point is reflected in the x-axis, its x-coordinate is unchanged and its y-coordinate is multiplied by -1. ie it changes sign.

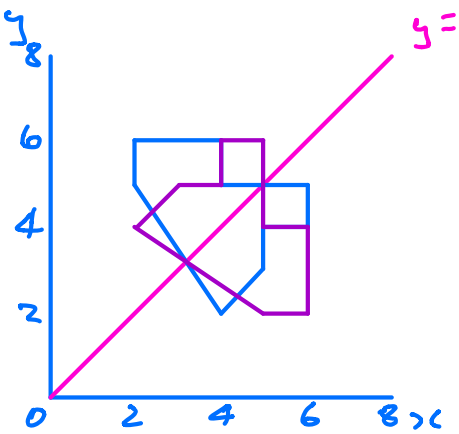
(a, b) would reflect to (a, -b)

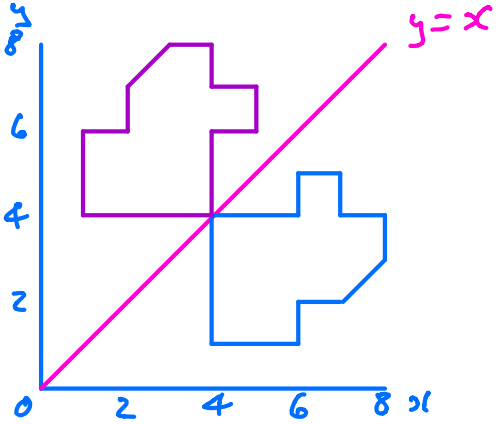
Reflection in Line y=x



$(x, y) \rightarrow (y, x)$

x and y coordinates swap




y
8
6
4
2
0
2
4
6
8
x
y = x