# Coordinates

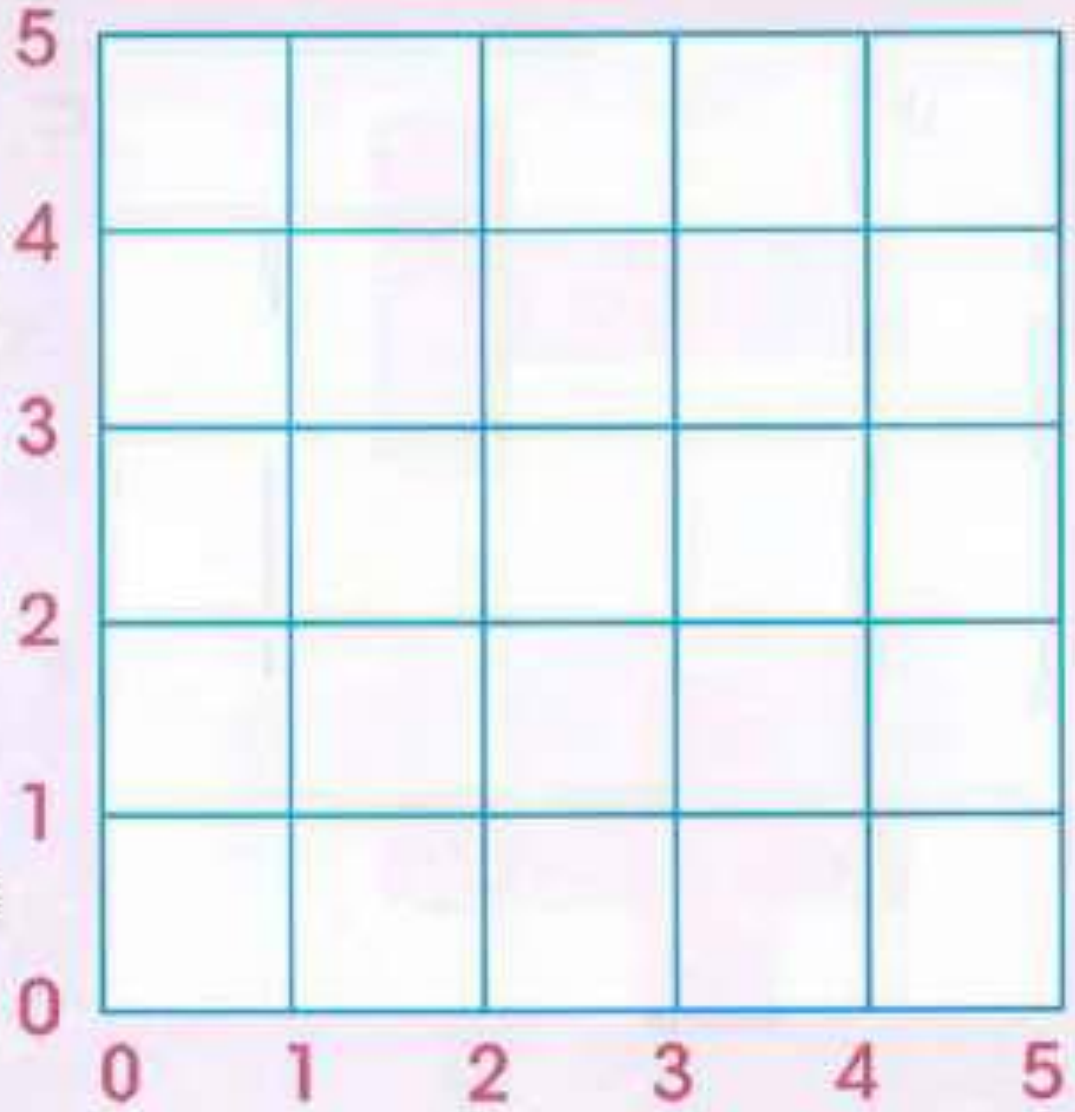
## Let's investigate

Draw a grid like this.

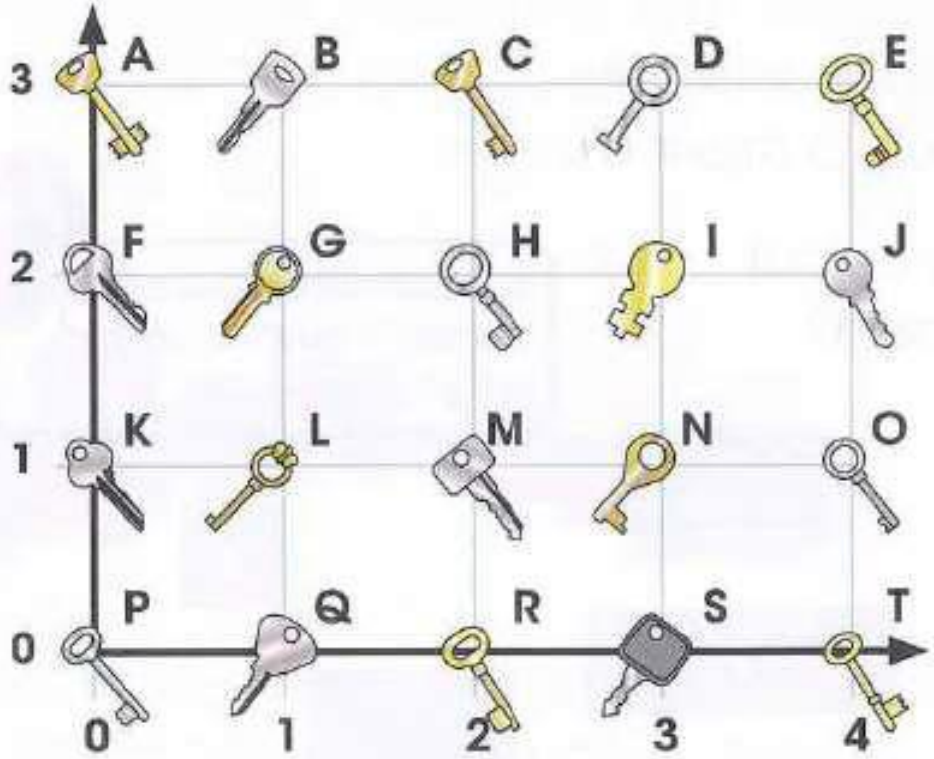
Plot (1, 0) and (5, 4) on your grid.

Draw a line between the two points.

What three other pairs of coordinates are on the line?



1 You need four keys to open the treasure chest. The first three keys are at the coordinates (4, 2), (2, 0) and (1, 1).



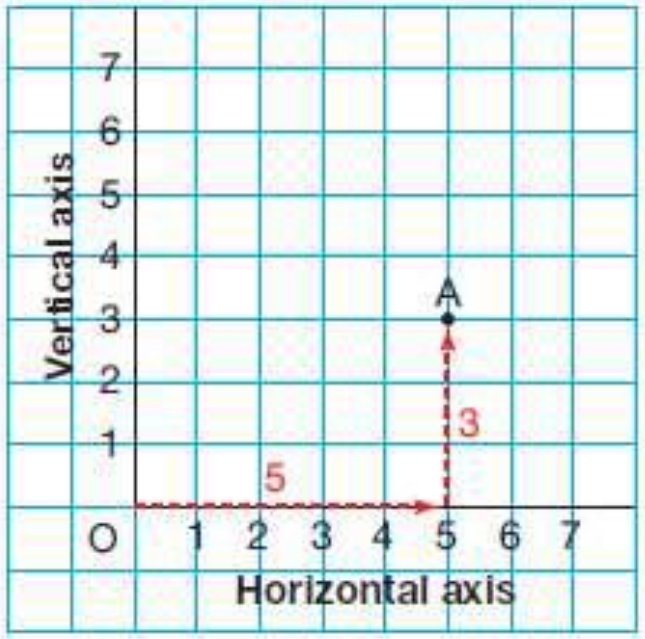

(a) What are the letters of the keys that open the first three locks?

(b) The four keys that open the chest are at the corners of a rectangle. Which key opens the fourth lock?

(c) What are the coordinates of the fourth key?

René Descartes was a French mathematician who lived from 1596 to 1650.
He developed the **coordinate grid** system shown below.
In his honour, it is called the **Cartesian plane**.

- Two perpendicular number lines intersect at 0.
  The point of intersection, O, is called the **origin**.
  To describe the position of a point on a coordinate grid, we use two numbers.
  The numbers locate a point in relation to the origin, O.




The first number tells how far you move right. The second number tells how far you move up.

From O, to reach point A, we move 5 units right and 3 units up.
We write these numbers in brackets: (5, 3)
These numbers are called **coordinates**.
Because the coordinates are always written in the same order, the numbers are also called an **ordered pair**.

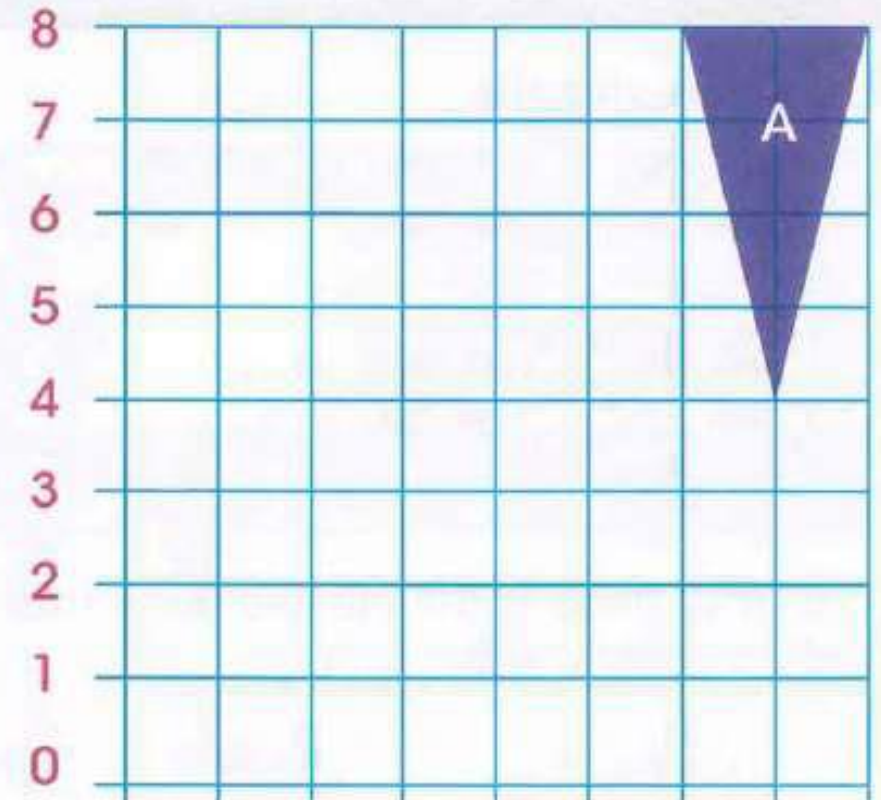
We move right along the **horizontal axis**.
We use the **vertical axis** to count the units up.

We say: A has coordinates (5, 3).
We write: A(5, 3)

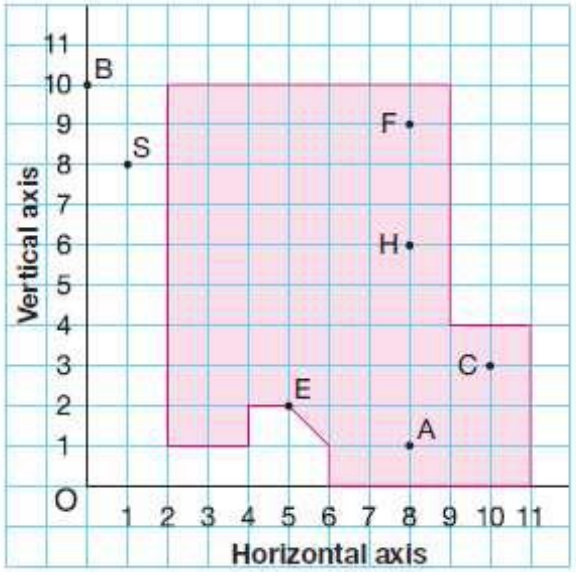
Each set of coordinates makes a triangle.

(a)
- **A (6, 8) (7, 4) (8, 8)**
- **B (1, 1) (6, 1) (6, 4)**
- **C (4, 2) (6, 6) (8, 2)**
- **D (3, 5) (4, 7) (7, 7)**
- **E (3, 4) (1, 6) (5, 6)**

Work out which type of triangle each set of coordinates makes.
Triangle A is shown on the grid.




Mr. Kelp's class went to the Vancouver Aquarium.
Angel drew this map of the aquarium site.




Write the ordered pair for each place.

a) Amazon Jungle Area: A
b) Beluga Whales: B
c) Carmen the Reptile: C
d) Entrance: E
e) Frogs: F
f) Sea Otters: S
g) Sharks: H

Draw and label a coordinate grid.
Plot each point on the grid.

a) P(2, 7)  b) Q(6, 5)  c) R(1, 4)  d) S(0, 3)  e) O(0, 0)