Grade 6 Math

Date: Oct.25

input	output
7	11
8	14
9	17
10	20
11	23
12	26

* What is the input rule?:

Start at 7, increase by 1 each time

* What is the output rule?:

Start at 11, increase by 3 each time.

* Write an expression that relates the input to the output using a variable.

3n - 10

What is the pattern rule that relates the input to the output?

⇒ multiply input by 3, then subtract 10 to get each output.

3 x n

Check

n=7 out=11

3 x n

3 x 7

21

not 11

So need to subtract 10

3n - 10

What is the output value if the input is 20?

3 x n - 10 ⇒ output

3 x 20 - 10

60 - 10

50

When In=20, output is 50.

Must have a letter

Write an expression with variables for each of the following

a) A number multiplied by 5 then add 30

n x5 +30 = or 5n + 30

30 + 5n
or

b) a dozen of cookies shared amongst friends

12 ÷ f

order matters

c) twelve more than triple a number

add multiply by 3

3n + 12
or
12 + 3n

d) a Taxi charges $2 for each kilometer

2n OR multiply 2xk

e) John gets $15 for passing grade 6, in addition to $5 per grade of "A+"

multiply

n5 + 15 15 + 5n

or

5n + 15

Lesson 5 : Plotting points on coordinate grid

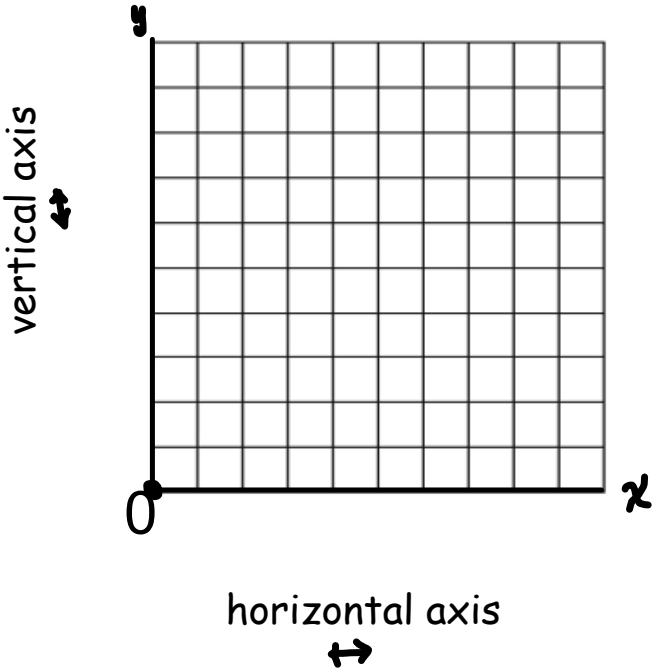
ss8: Identify & plot points in quadrant 1

If you are "here", how could you explain how to reach the treasure chest?

Recall that in math we need to have rules set for us, so that we all can follow and get the same answers all over the world.

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

This is a Coordinate Grid/Cartesian Plane



It is made from 2 perpendicular lines that meet at 0.

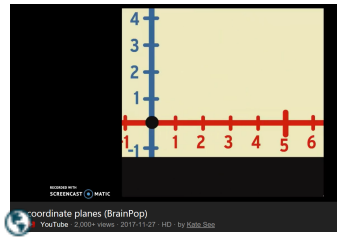
The point in which the two lines intersect is called the **origin**.

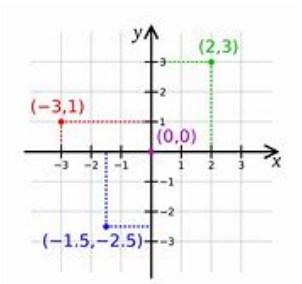
To describe the position of a point on the coordinate grid, we use two location numbers. These numbers are called **coordinates** and are always written in the same order.

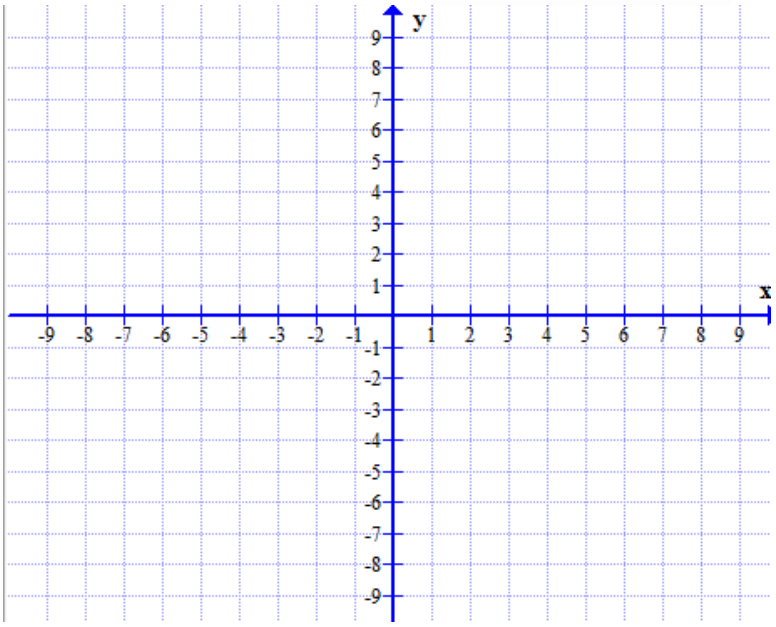
(right, up)

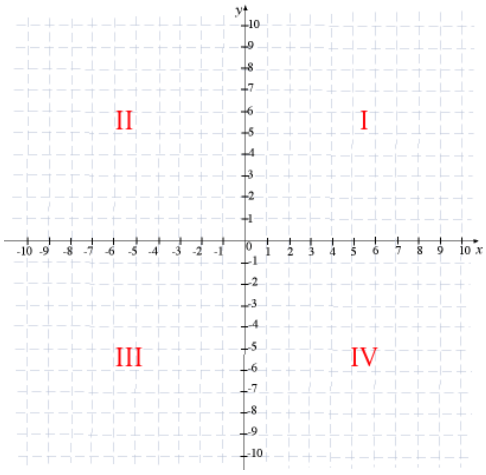
(x , y)

Always start at the origin (0, 0) and count how many block "right" first , then how many blocks "up" to get to the desired point.





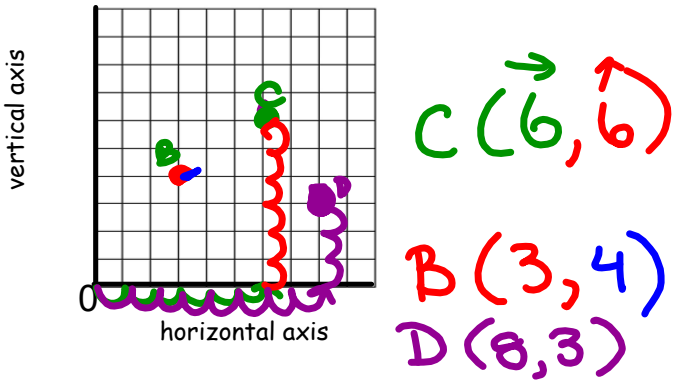


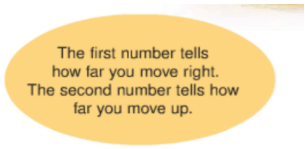


For grade 6 we will focus on Quadrant 1

(positive x, positive y)
(right, up)

Let's try





(x , y)

From O, to reach point B, we must move _____units right and ___ units up.

We write these numbers in brackets (,)

These are called coordinates or ordered pairs.

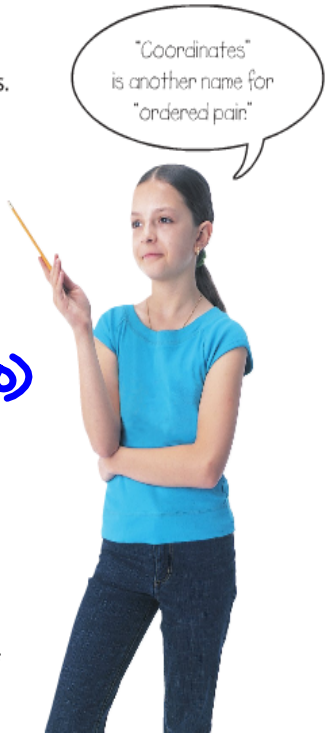
We say: B has coordinates (3, 4)

We write: B(3, 4)

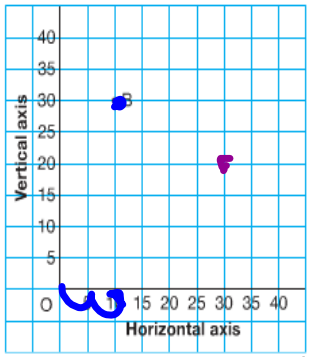
Now write the ordered pairs for both the points C and D

➤ When the numbers in an ordered pair are large, we use a scale on the coordinate grid. On this coordinate grid, 1 square represents 5 units.

To plot point B(10, 30):
Start at O.
Move 2 squares right.
Move 6 squares up.



notice the scale of counting by 5 for the vertical axis



B(10, 30)

notice the scale of counting by 5 for the horizontal axis

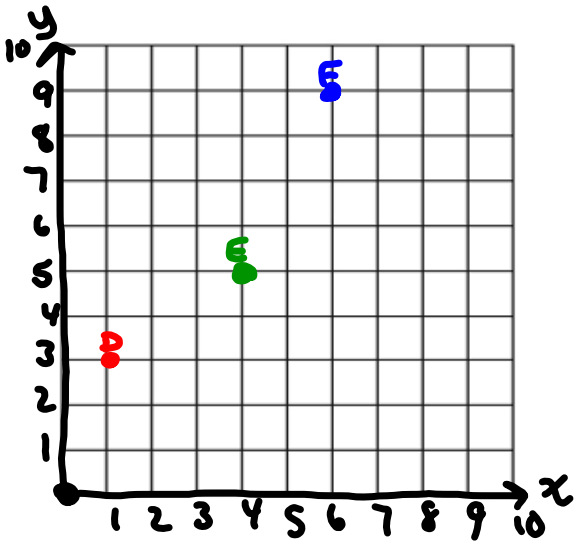
Practice

What is the coordinate for F?

F(30, 20)

You try plotting these three points

*Label your axis first

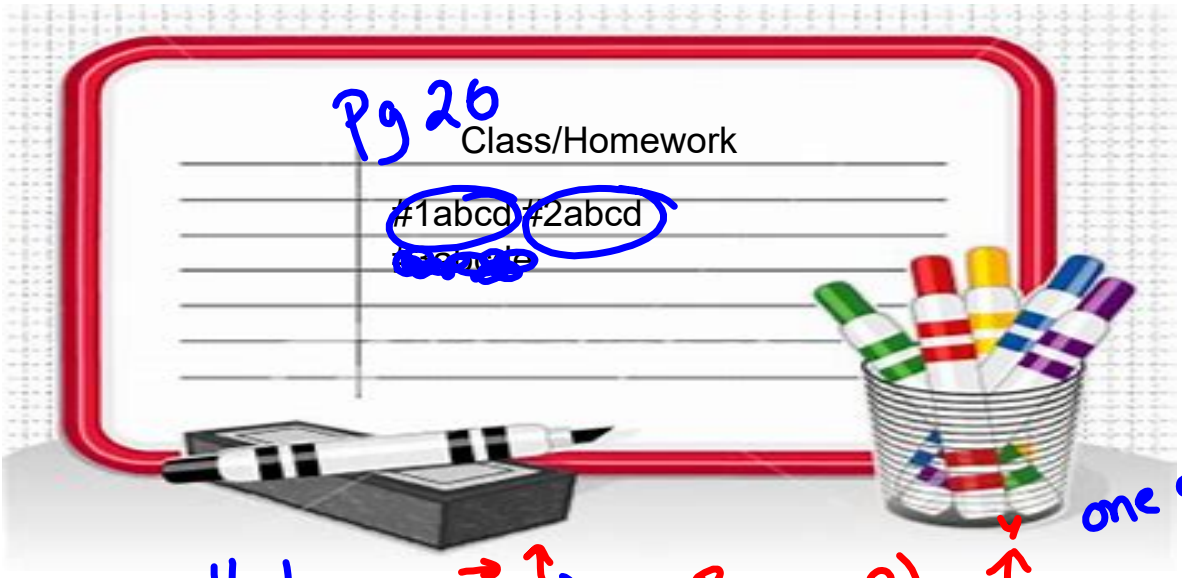


↔ ↕

D(1, 3)

E(4, 5)

F(6, 9)



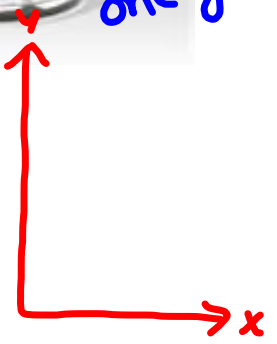
#1 a) (1,5) B

b) (5,1) ___

c) (0,7) ___

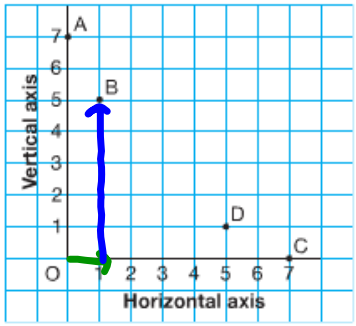
d) (7,0) ___

2)



Practice

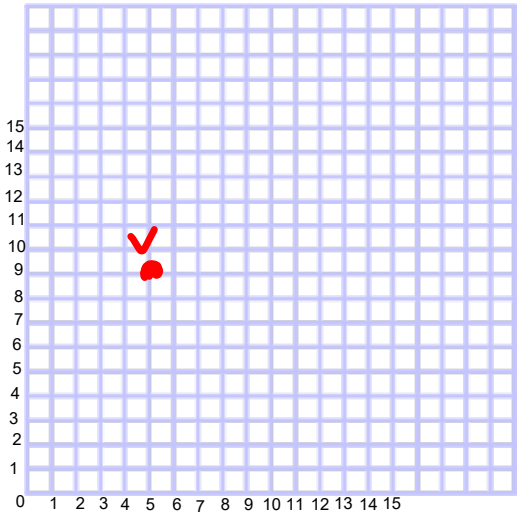
1. Match each ordered pair with a letter on the coordinate grid.
   a) (1, 5)
   b) (5, 1)
   c) (0, 7)
   d) (7, 0)



2. Draw and label a coordinate grid.
Plot each ordered pair.
Explain how you moved to do this.

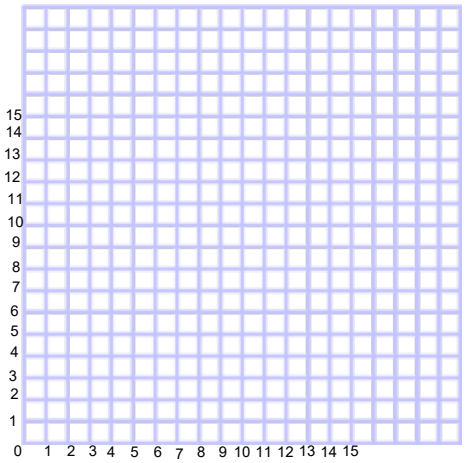
a) V(5, 9) b) W(0, 9) c) X(5, 7) d) Y(8, 0)

V(5, 9)

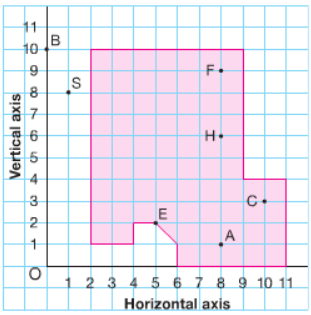


3. Draw and label a coordinate grid.
Plot each point on the grid.

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



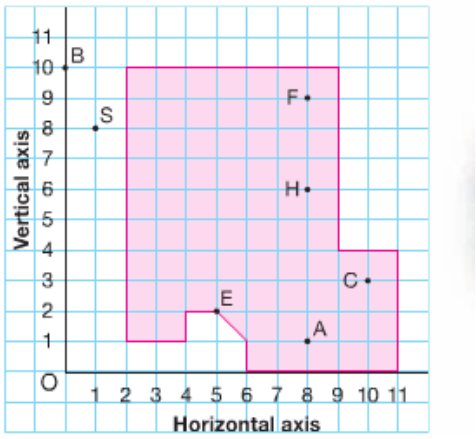
4. Mr. Kelp's class went to the Vancouver Aquarium.
Angel drew this map of the aquarium site.



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

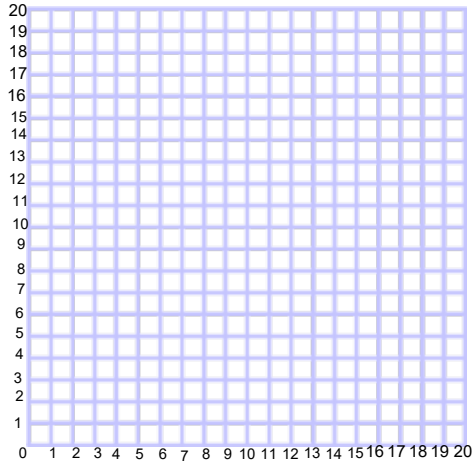
5. Use the map in question 4.
   a) To get to the Pacific Canada Pavilion at point P:
   You move 1 square left and 3 squares up from the entrance, E.
   What are the coordinates of P?
   b) To get to the Clam Shell Gift Shop at point G:
   You move 5 squares left and 4 squares down from the sharks, H.
   What are the coordinates of G?



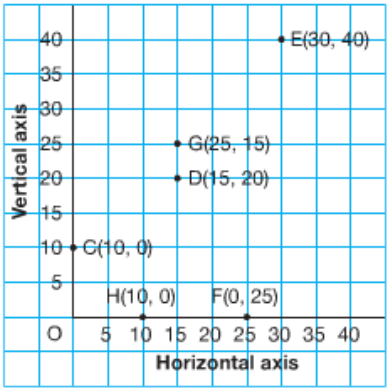
TIP

6. Draw and label a coordinate grid.
Plot each point on the grid.
How did you decide which scale to use on the axes?
a) A(10, 40) **b)** B(10, 0) **c)** C(20, 20) **d)** D(0, 30) **e)** E(50, 60)

7. Draw and label a coordinate grid.
Plot each point on the grid.
How did you decide which scale to use on the axes?
a) J(14, 20) **b)** K(6, 12) **c)** L(0, 18) **d)** M(8, 4) **e)** N(16, 0)



8. A student plotted 6 points on a coordinate grid, then labelled each point with its coordinates. The student has made some mistakes. For each point that has been labelled incorrectly:
   a) Explain the mistake.
   b) Write the coordinates that correctly describe the location of the point.



9. Draw and label a coordinate grid.
Use a scale of 1 square represents 5 units.
Plot 5 points on the grid.
Use an ordered pair to describe the location of each point.

10. a) The first number in the ordered pair for Point A is 0.
What does this tell you about Point A?
b) The second number in the ordered pair for Point B is 0.
What does this tell you about Point B?