

CCT Weekly

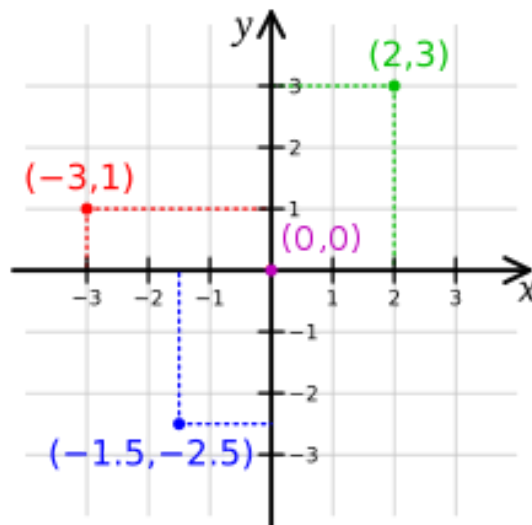
UNIT 01: The treasure island

Understanding Graphs:

On a graph sheet, a point is located using a **pair of numbers such as (x, y)**

- the first number 'x' shows the horizontal distance of the point (i.e. left or right) on the *horizontal line*
- the second number 'y' shows the vertical distance of the point (i.e. up or down) on the *vertical line*.
- The point where X-axis and Y-axis cross over each other at 90° , is called *the Origin* denoted by (0, 0).

- ☐ The line showing *left-right* (horizontal) direction is commonly called X-axis
- ☐ The line showing *up-down* (vertical) direction is commonly called Y-axis



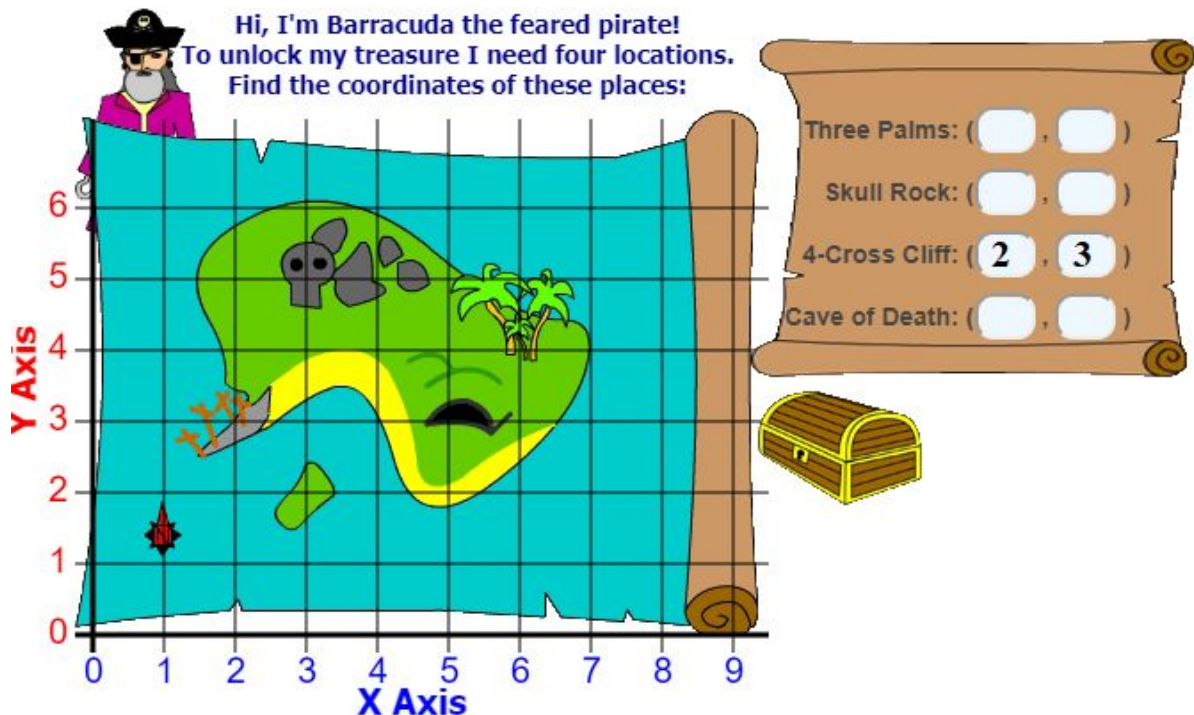
Example: In the image above, the point (2,3) is 2 units to the right of origin along vertical line and 3 units above origin along the vertical line

Clearly the X-axis and Y-axis divide the plane (for you, it is the surface where we draw them) is known as Cartesian plane.

We measure everything on the Cartesian plane with respect to Origin

- The X Axis runs horizontally through zero
- The Y Axis runs vertically through zero

Shikha and Sanjana are playing a board game of Treasure Island.



Question 1

What is the distance of the SKULL ROCK from the x-axis?

- 3 units
- 4 units
- 5 units
- 8 units.

Question 2

The coordinates of CAVE OF DEATH is

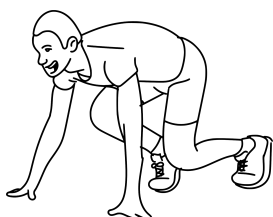
- (3, 5)
- (3, 3)
- (5, 5)
- (5, 3)

Question 3

The distance between FOUR CROSS CLIFF and the CAVE OF DEATH is

- 3 units
- 5 units
- 2 units
- None of these

UNIT 02: Reaction Time



In Olympics sprinting event, the reaction time is the time interval between the starter's gun firing and the athlete leaving the starting block. The 'final time' includes both this reaction time, and the running time.

The following table gives the reaction time and the final time of first 8 runners in the 2016 Olympics- Men's 100 metre sprint race.

Rank	Name	Reaction time (in seconds)	Final Time (in seconds)
1.	Jimmy Vicaut	0.140	10.04
2.	Andre De Grasse	0.141	9.91
3.	Trayvon Bromell	0.135	10.06
4.	Yohan Blake	0.145	9.93
5.	Akani Simbine	0.128	9.94
6.	Usain Bolt	0.155	9.81
7.	Justin Gatlin	0.152	9.89
8.	Ben Youssef Meitre	0.156	9.96

Question 4: Identify the Gold, Silver and Bronze medallists from this race. Fill in the table below with the medallists' lane number, reaction time and final time.

Medal	Lane	Reaction time (in seconds)	Final time (in seconds)
Gold			
Silver			
Bronze			

Question 5: To date, no humans have been able to react to a starter's gun in less than 0.110 second.

In Olympics if the recorded reaction time for a runner is less than 0.110 second, then the athlete's start is considered a false start because the runner must have left before hearing the gun.

If the Bronze medallist had a faster reaction time, would he have had a chance to win the Silver medal? Give an explanation to support your answer.

CCT Weekly Answer key

Question 1 c) 5 units

Question 2 d) (5,3)

Question 3 a) 3 units

Question 4

Medal	Lane	Reaction time (in seconds)	Final time (in seconds)
Gold	6	0.155	9.81
Silver	7	0.152	9.89
Bronze	2	0.141	9.91

Question 5

Full credit : Yes, with adequate explanation.

Bronze medalist actual race time is $9.91 - 0.141 = 9.769$ seconds

- Yes, If he had a reaction time of 0.02 sec faster or more

(his final time would be $9.769 + 0.141 - 0.02$ or more = 9.89 seconds or less) and he would have equalled second place

- Yes, he would have a chance to win the Silver medal if his reaction time was less than or equal to 0.121 sec.

(his final time would be $9.769 + 0.121$ or less = 9.89 seconds or less)

- Yes, with the fastest possible reaction time of 0.110 or more he would have done a 9.879 seconds which is good enough for silver medal.

No credit: Other responses, including yes without adequate explanation.

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