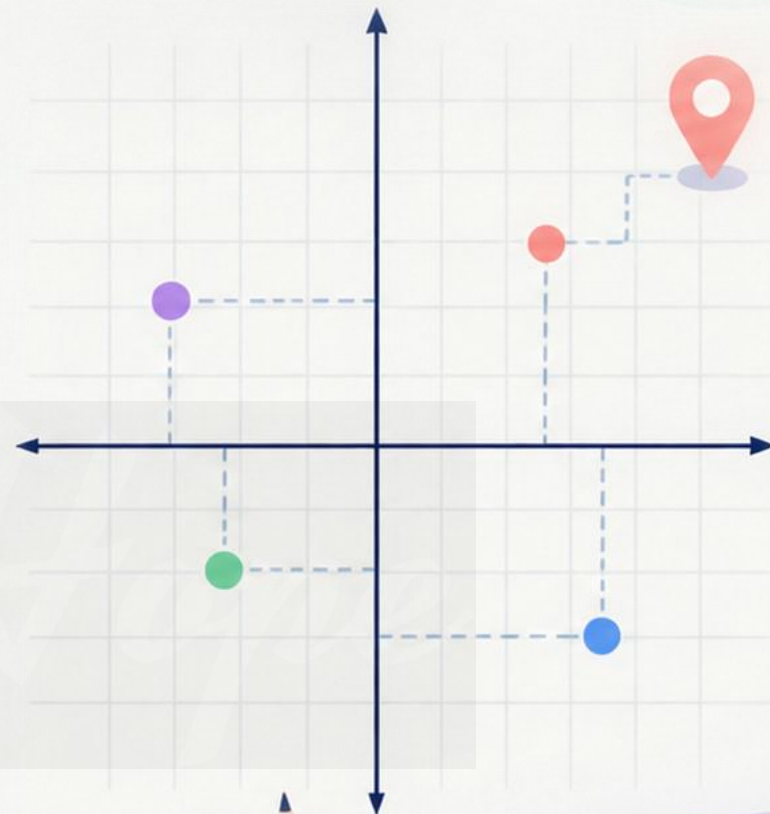


MATHEMATICS • CLASS 9

## CHAPTER 1

# Orienting Yourself The Use of Coordinates

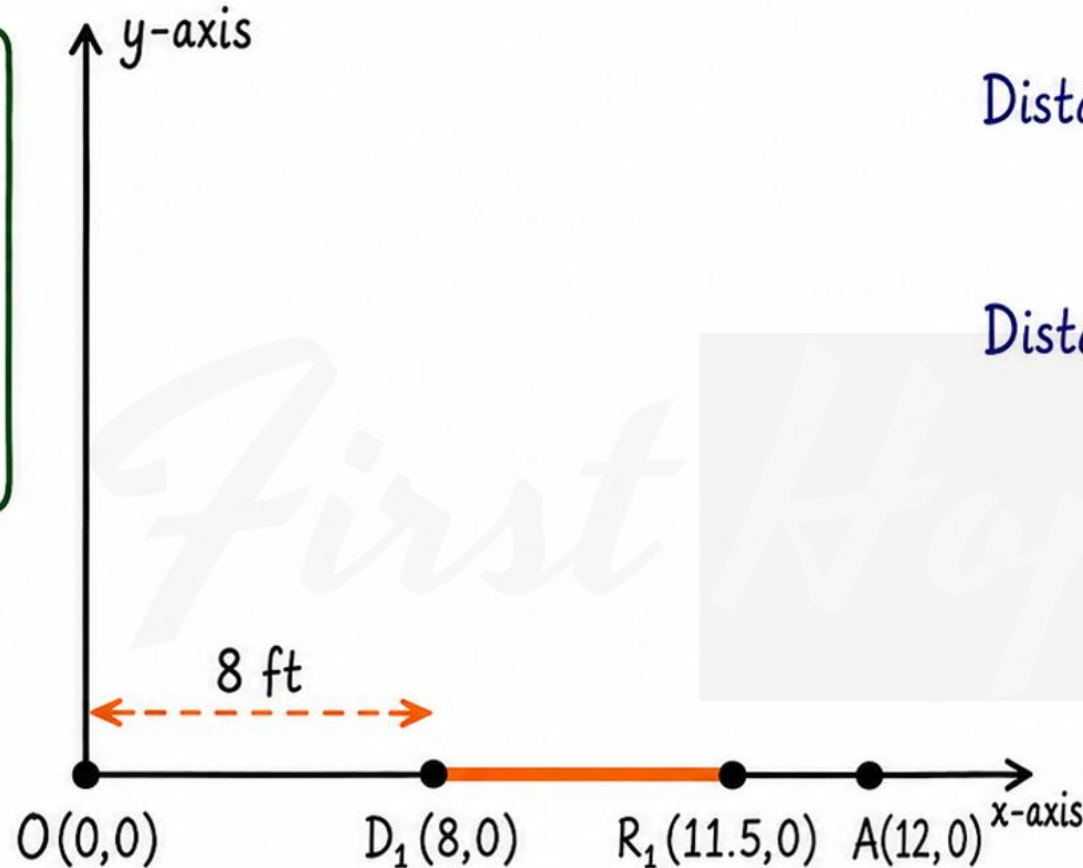
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# EXERCISE SET 1.1 — DOOR COORDINATES

Q1. Door point  $D_1$

- (a) Distance from the left wall / y-axis?
- (b) Distance from the x-axis?



$$\begin{aligned}\text{Distance from y-axis} &= |x\text{-coordinate}| \\ &= |8| = 8 \text{ ft}\end{aligned}$$

$$\begin{aligned}\text{Distance from x-axis} &= |y\text{-coordinate}| \\ &= |0| = 0 \text{ ft}\end{aligned}$$

Q2. Coordinates of  $D_1$

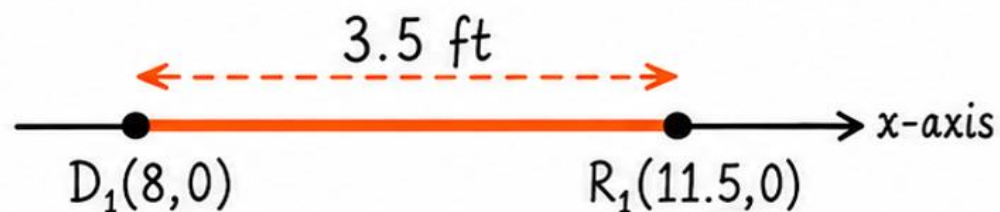
Move 8 units right from 0 and 0 units up.

$$\therefore D_1 = (8, 0)$$

A point on the x-axis always has y-coordinate 0.

# EXERCISE SET 1.1 – DOOR WIDTHS

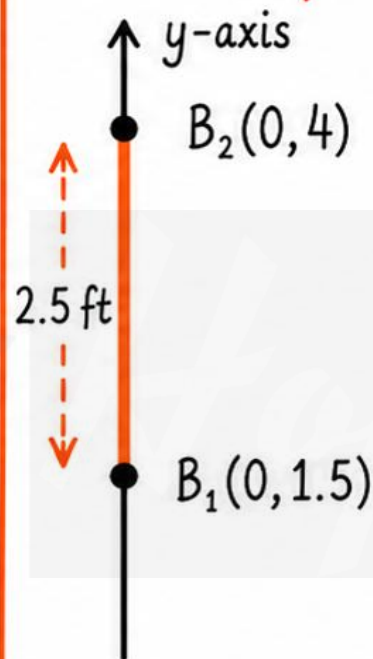
Q3. Width of Reiaan's room door



$$\begin{aligned}\text{Door width} &= 11.5 - 8 \\ &= 3.5 \text{ ft}\end{aligned}$$

This opening gives more room for passage.  
It is likely comfortable, but actual wheelchair suitability should be checked by measuring the doorway and wheelchair.

Q4. Compare the two doors



$$\begin{aligned}\text{Bathroom door width} &= 4 - 1.5 \\ &= 2.5 \text{ ft}\end{aligned}$$

$$3.5 \text{ ft} - 2.5 \text{ ft} = 1 \text{ ft}$$

$\therefore$  The bathroom door  
is narrower by 1 ft.

## THINK AND REFLECT

Door widths at home or school are an observation activity.  
Measure the clear opening. Then compare it with the width needed by a wheelchair.  
From this plan: room door = 3.5 ft; bathroom door = 2.5 ft.

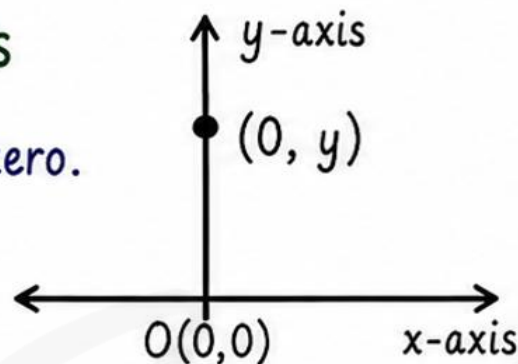
# THINK AND REFLECT — ORDERED PAIRS

## 1. Point on the $y$ -axis

Its horizontal movement is zero.

General form:  $(0, y)$

$\therefore x\text{-coordinate} = 0$

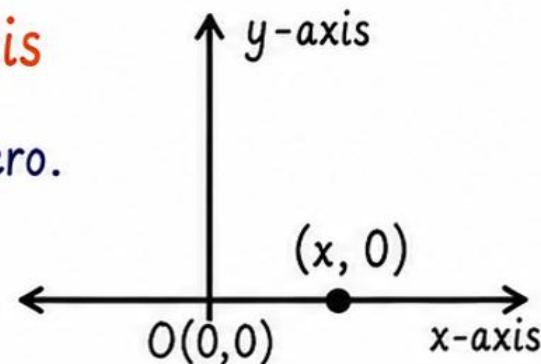


## 2. Point on the $x$ -axis

Its vertical movement is zero.

General form:  $(x, 0)$

$\therefore y\text{-coordinate} = 0$



## 3. When does $Q(y, x)$ coincide with $P(x, y)$ ?

For the same position:

$$x = y \quad \text{and} \quad y = x$$

So both coordinates must be equal.

$P$  and  $Q$  coincide only when  $x = y$ .  $P(3,3) = Q(3,3)$

## 4. Is the claim true?

If  $x \neq y$ , then  $(x, y) \neq (y, x)$ .

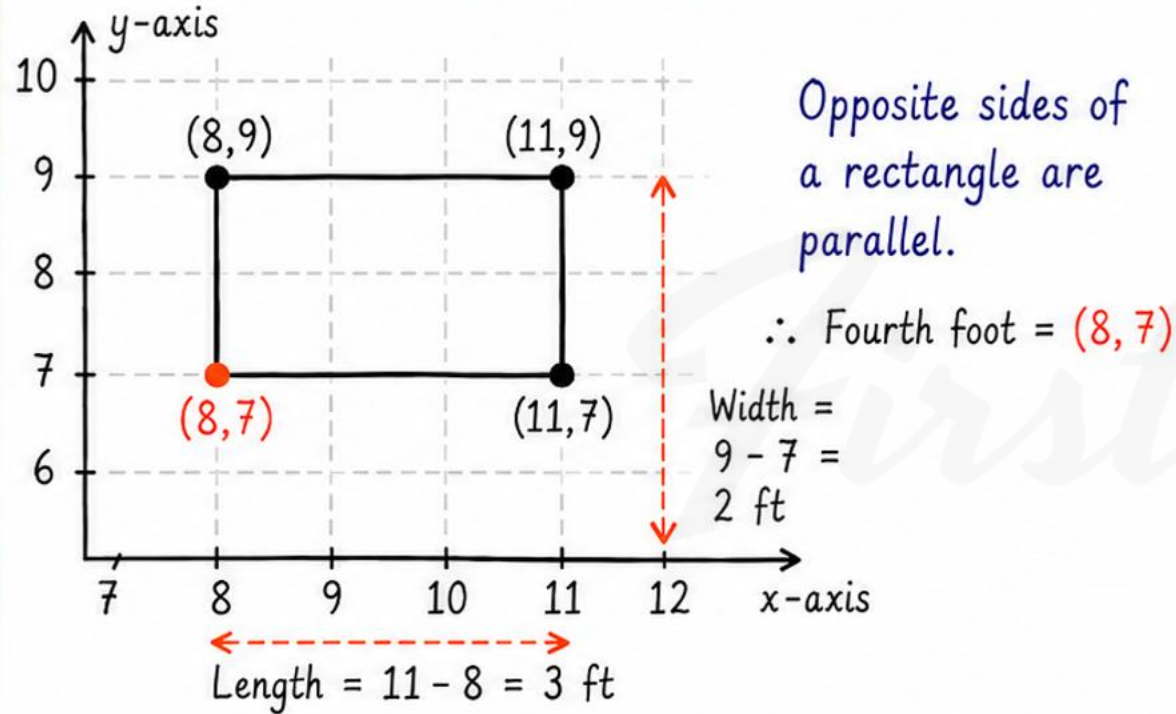
If  $x = y$ , then  $(x, y) = (y, x)$ .

Yes. The claim is true. ✓

In an ordered pair, order matters: first  $x$ , then  $y$ .

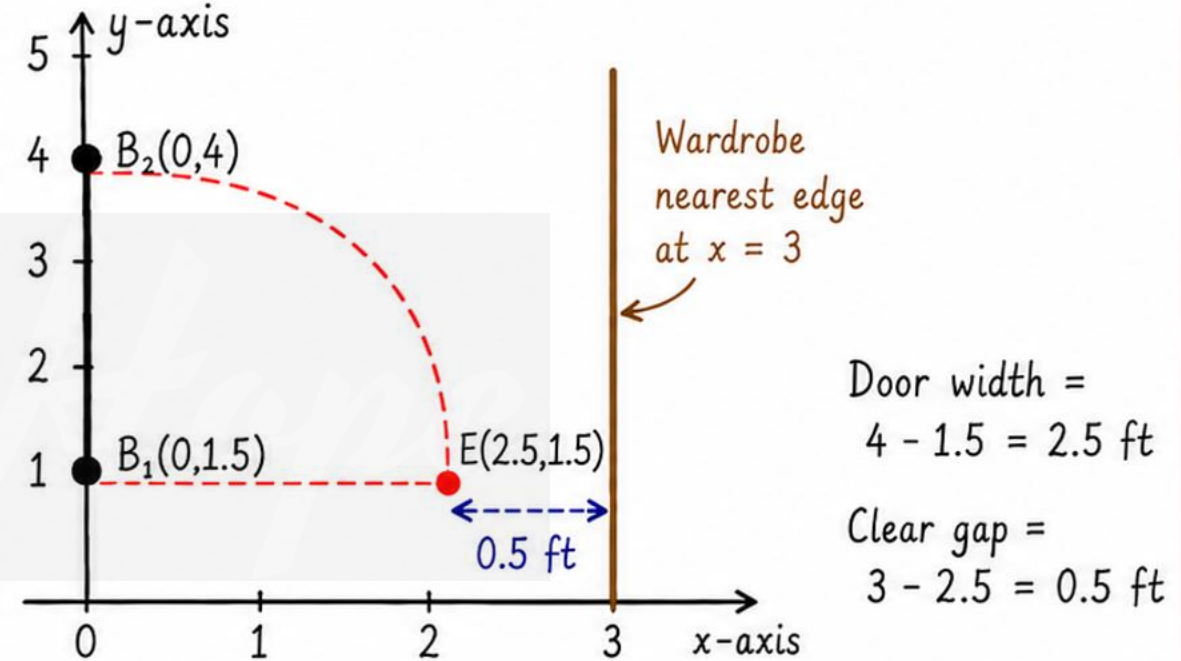
# EXERCISE SET 1.2 – TABLE AND DOOR

Q1. Reiaan's rectangular study table



- The spot (upper-right part of the bedroom) is free, so it is a good spot.
- A floor plan shows length and width, not height.
- Height cannot be found from this 2-D plan.

Q2. Will the bathroom door hit the wardrobe?



No. The present door does not hit the wardrobe.

- If the door is made wider, move the wardrobe right or change the opening direction.



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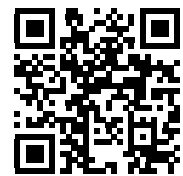


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