ODM EDUCATIONAL GROUP
Changing your Tomorrow

PERIOD 1

MATHEMATICS

CHAPTER NUMBER :~ 5
CHAPTER NAME :~INTRODUCTION TO EUCLID'S GEOMETRY

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LEARNING OUTCOME:-

1.Students will be able to learn Euclid's axiom and postulates.

If A, B and C are three points on a line, and B lies between A and C then prove that AB + BC = AC.

In the figure given above, AC coincides with AB + BC.

From Euclid's Axiom 4 : *Things which coincide with one another are equal to one another.*

So, we can write AB + BC = AC

If a point C lies between two points A and B such that AC = BC, then prove that AC = $\frac{1}{2}$ AB . Explain by drawing the figure.

We have a point C lying between two points A and B such that AC = BC.

AC = BC

Adding AC on both sides,

AC + AC = AC + BC

2AC = AC + BC

But AC + BC = AB as AC + CB coincides with AB

⇒ 2AC = AB

AC = $\frac{1}{2}$ AB

Hence proved

In the following figure, if AC = BD, then prove that AB = CD.

AC = BD	*(Given)*	*....(1)*
AC = AB + BC	*(Point B lines between A and C)*	*....(2)*
BD = BC + CD	*(Point C lines between B and D)*	*....(3)*

Substituting for AC and BD from (2) and (3) in (1) , we get

AB + BC = BC + CD

AB = CD

Hence proved

In the above question, point C is called a mid-point of line segment AB, prove that every line segment has one and only one mid-point.

In previous question, C was mid point of AB.

Now we consider there are two mid points of AB, C & D.

So, AC = BC ...(1)

So, AD = DB ...(2)

Subtracting (1) from (2) , we get

$$AC - AD = CB - DB$$

$$-DC = DC$$

$$2DC = 0$$

$$DC = 0$$

So, distance between C & D is 0 , i.e. C and D coincides.

Thus, every line segment has one and only one mid- point

We need to draw graph

Putting x = 0 ,

$y = 5(0)$

$y = 0$

So, (0,0) is a solution of the equation

Putting x = 1 ,

$y = 5(1)$

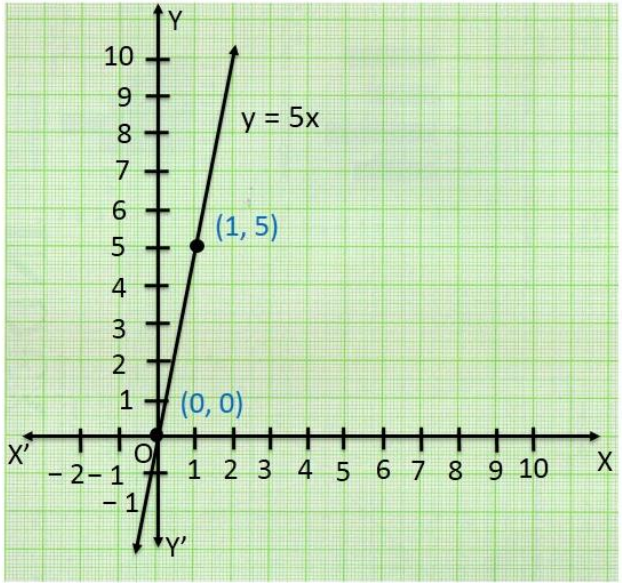
$y = 5$

So, (1,5) is a solution of the equation

x	0	1
y	0	5

Plotting points

x	0	1
y	0	5



In countries like USA and Canada, temperature is measured in Fahrenheit, whereas in countries like India, it is measured in Celsius. Here is a linear equation that converts Fahrenheit to Celsius

: $F = \left(\frac{9}{5}\right) C + 32$.

(i) Draw the graph of the linear equation above using Celsius for *x*-axis and Fahrenheit for *y*-axis.

We need to graph of $F = \left(\frac{9}{5}\right) C + 32$

Finding solution

Putting C = 0 ,

$F = \left(\frac{9}{5}\right) 0 + 32$

$F = 0 + 32$

$F = 32$

So, (0,32) is a solution of the equation

Putting F = 0 ,

$0 = \left(\frac{9}{5}\right) C + 32$

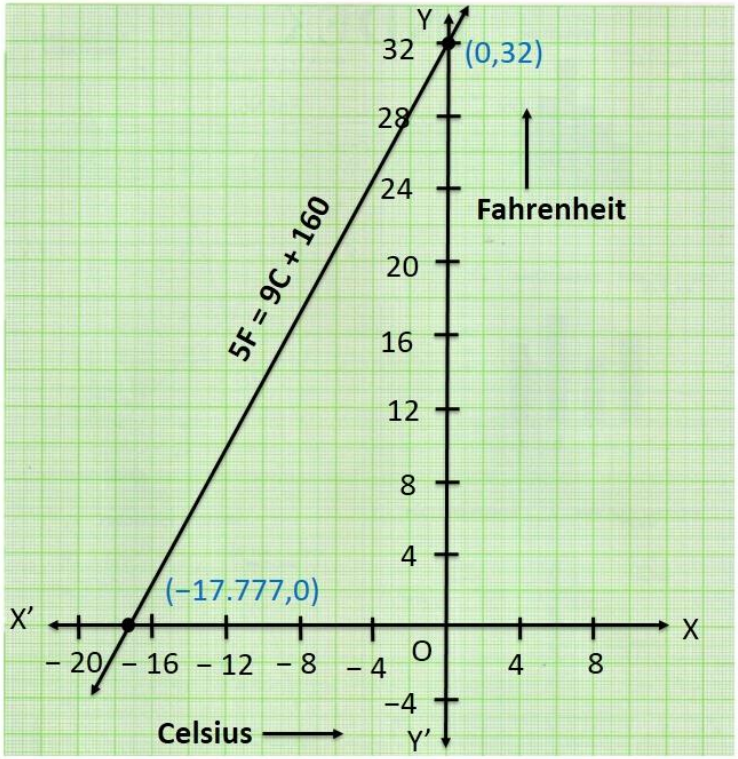
$\left(\frac{9}{5}\right) C = -32$

$C = -32 \times \frac{5}{9} = -\frac{160}{9} = -17.777$

So, $\left(-\frac{160}{9}, 0\right)$ is a solution of the equation

Plotting points

C	x	0	−17.777
F	y	32	0



HOMEWORK ASSIGNMENT

Exercise 5.1

AHA

1. Differentiate between axioms and postulates with examples.

THANKING YOU

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