

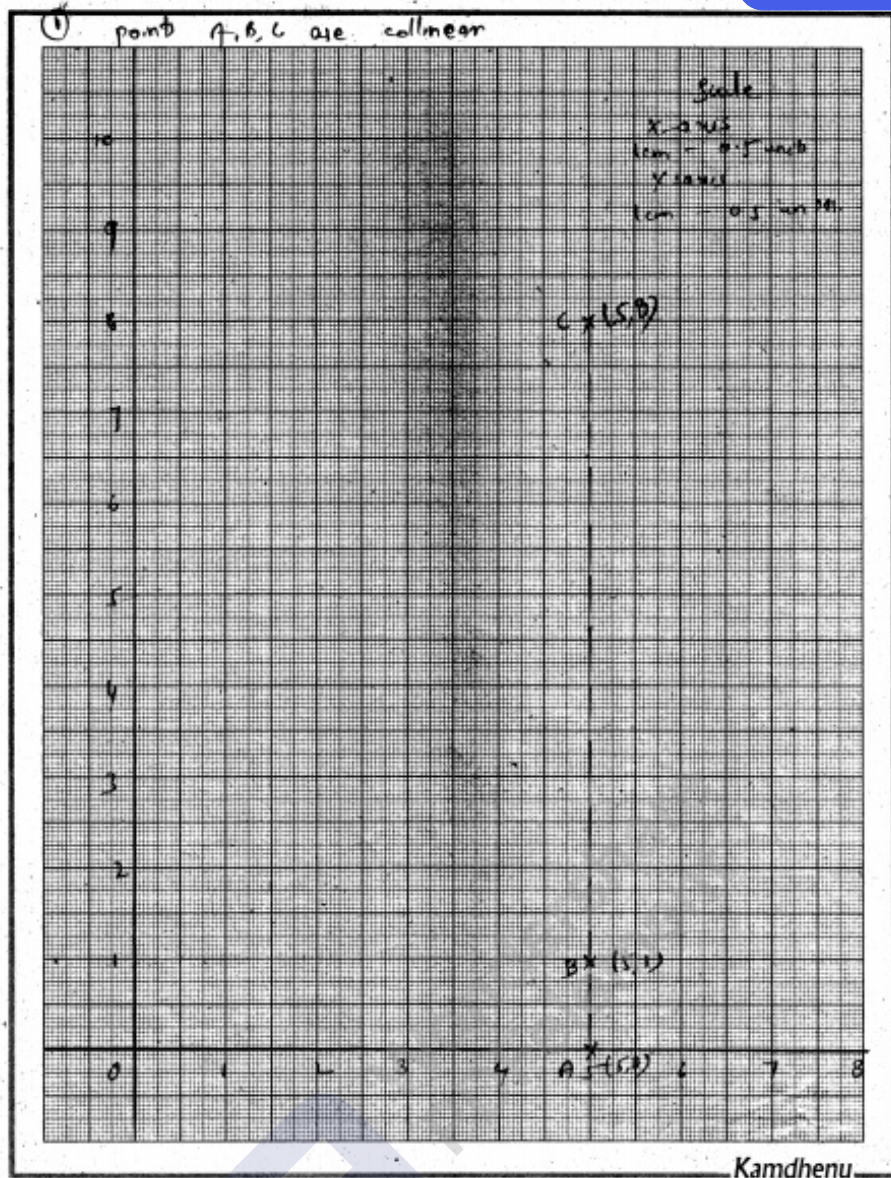


Introduction To Graphs Ex-27.1

Introduction to Graphs

Exercise 27.1

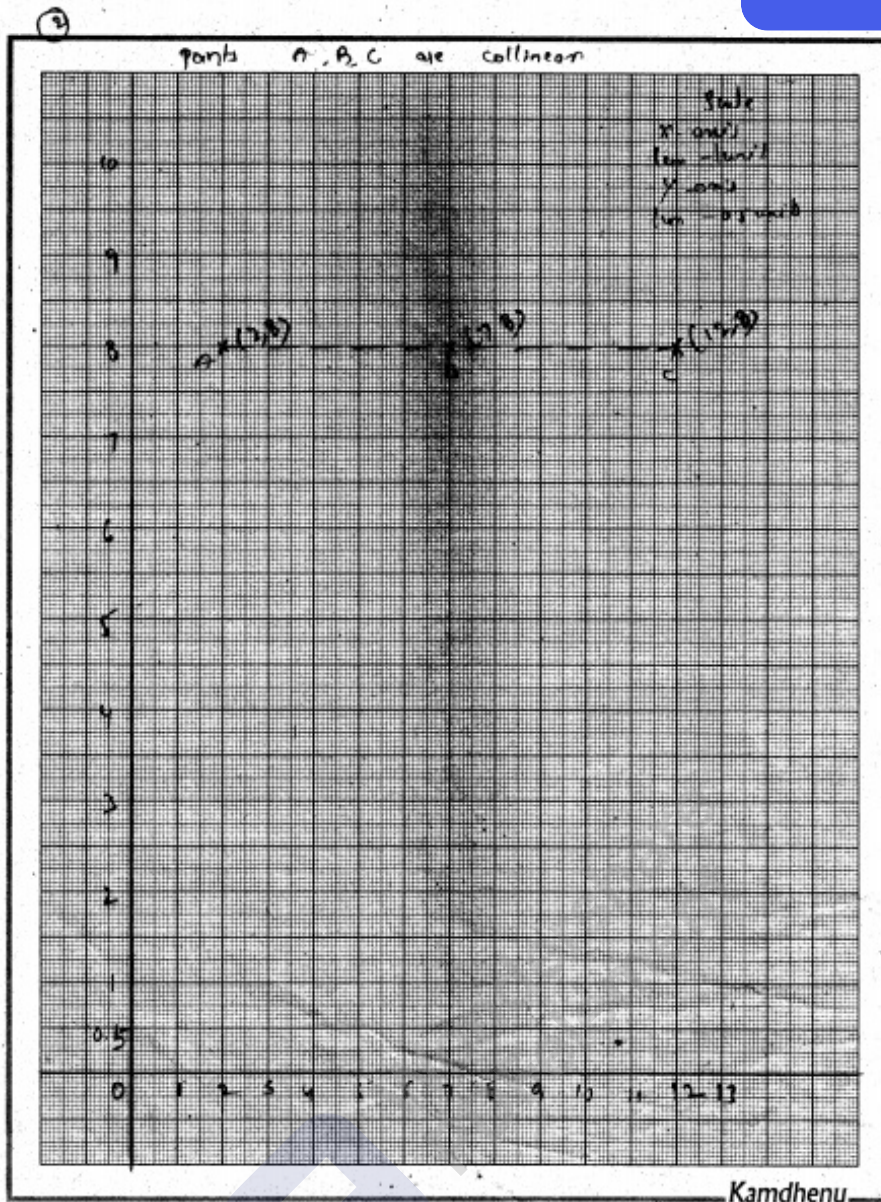
- ① Take a point O on the graph paper & draw horizontal & vertical line OX & OY respectively.
- Let us choose that on both axes 1 cm represents 0.5 units.
 - In order to plot A we need to start from origin O & move 10 cm along OX , hence point $A(5,0)$ is plotted.
 - In order to plot B we need to start from origin O & move 10 cm along OX , & then from there move 2 cm along OY . Hence we get point $B(5,1)$.
 - for point C , start from origin & move 10 cm along OX & then from there move ~~2~~ 16 cm along OY . Hence point $C(5,8)$ is plotted.
 - From the graph we can conclude that points A, B, C are collinear.





(2)

- Take a point O on the graph paper & draw horizontal & vertical lines Ox & Oy .
- Let us choose on x -axis 1cm represents 1 unit & on y -axis 1cm represents 0.5 units.
- In order to plot point A from ' O ' move 2cm along x -axis & then from there move 16cm along y -axis. Thus the point $A(2, 8)$ is plotted.
- For point B , from ' O ' move 7cm along x -axis & then from there move 16cm along y -axis. Thus $B(7, 8)$ is plotted.
- For point C , from ' O ' move 12cm along Ox & then from there move 16cm along Oy . Thus $C(12, 8)$ is plotted.
- From the graph we can see that points A, B, C are collinear & parallel to x -axis.





③

- Take a point 'O' on a graph & draw two lines, OX & OY from 'O' & both perpendicular.
- Take the scale along X -axis as $1\text{cm} = 0.5\text{ unit}$ & along Y -axis as $1\text{cm} = 0.5\text{ unit}$.

(i) → In order to plot A, move from 'O' move 2cm along OX & then from there move 8cm along OY .
Hence point A (1, 4) is plotted.

→ For plotting B, from 'O' move 2cm along OX & then from there move 6cm along OY .
Hence point B (1, 3) is plotted.

→ For plotting C, from 'O' move 2cm along OX & from there move 4cm along OY .

→ For plotting D, from 'O' move 2cm along OX & from there move 2cm along OY .

→ points A, B, C, D are collinear.



(ii) → In order to plot P, from 'O' move 4cm along OX & then from there move 8cm along OY. Hence point P(2,4) is plotted.

→ To plot Q, from 'O' move 4cm along OX & then from there move 6cm along OY. Hence point Q(2,3) is plotted.

→ To plot R, from 'O' move 4cm along OX & then from there move 4cm along OY.

→ To plot S, from 'O' move 4cm along OX & then from there move 2cm along OY.

Hence point S(2,1) is plotted.

→ Hence points P, Q, R, S are collinear & parallel to Y-axis.

(iii) → In order to plot point X, from 'O' move 6cm along OX & then from there move 6cm along OY. Hence point X(3,3) is plotted.

→ To plot Y, from 'O' move 8cm along OX & then from there move 6cm along OY. Hence point Y(4,3) is plotted.

— As points B(1,3), Q(2,3) are plotted, therefore B, Q, X, Y are plotted.

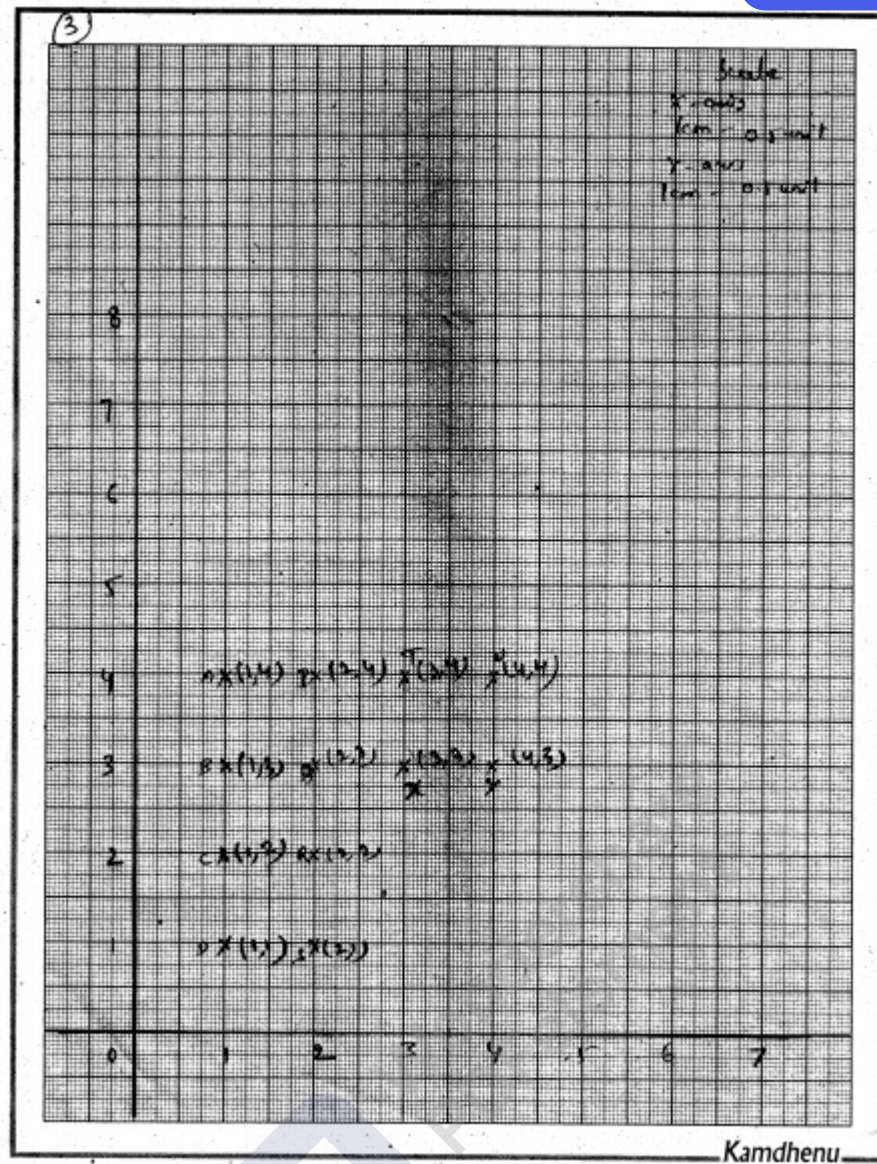
— points B, Q, X, Y are plotted & are collinear.

(iv) → In order to plot point T, from 'O' move 6cm along OX & from there move 8cm along OY. Hence point T(3,4) is plotted.

→ To plot point U, from 'O' move 8cm along OX & then from there move 8cm along OY. Hence point U(4,4) is plotted.

→ As point A & P are plotted, therefore

A, P, T, U are plotted. Points are collinear.



- (4)
- Given in graph, the scale is given as
along OX 1cm = 1 unit & along OY 1cm = 1 unit.
 - Point A is at ~~for form plotted when~~
at a distance of 1 unit from OX & 1 unit
from OY. Hence the coordinates A(1,1)



- point B is at a distance of 1 unit from 'O' along OX & 4 units from 'O' along OY. Hence the coordinates are $B(1, 4)$
- point C is at a distance of 4 units from 'O' along OX & 6 units from 'O' along OY.
- Point D is at a distance of 5 units from 'O' along OX & 3 units from 'O' along OY. Hence coordinates are $D(5, 3)$.
- The points are $A(1, 1)$, $B(1, 4)$, $C(4, 6)$, $D(5, 3)$.

(5)

- Given in graph the scale along x-axis is $1\text{cm} = 2$ units with unit 10 as the starting number & along y-axis $1\text{cm} = 20$ units.

- Point 'P' is at a distance of 10 units from 'O' along OX & at a distance of 70 units from 'O' along OY. Hence $P(10, 70)$
- Point 'Q' is at a distance of 12 units from 'O' along OX & at a distance of 80 units from 'O' along OY. Hence $Q(12, 80)$

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- Point R is at a distance of 16 units from 'O' along OX & at a distance of 100 units from 'O' along OY. Hence $R(16, 100)$
- Point S is at a distance of 20 units from 'O' along OX & at a distance of 120 units from 'O' along OY. Hence $S(20, 120)$.
- The points are $P(10, 70)$, $Q(12, 80)$, $R(16, 100)$, $S(20, 120)$.



⑥

- Given in graph, the scale along OX is $1\text{cm} = 1\text{unit}$ & along OY is $1\text{cm} = 1\text{unit}$.
- Point X is at a distance of 2 units from 'O' along OY & lies on Y -axis. Hence $X(0, 2)$.
- Point Y is at a distance of 2 units from 'O' along OX & lies on X -axis at a distance from 'O' at a distance of 2 units from 'O' along OY . Hence $Y(2, 2)$.
- Point Z is at a distance of 2 units from 'O' along OX & lies on X -axis. Hence $Z(2, 0)$.





- Point A is at a distance of 4 units from 'O' along OX & at a distance of 5 units from 'O' along OY. Hence $A(4, 5)$.
- Point B is at a distance of 7 units from 'O' along OX & at a distance of 5 units from 'O' along OY. Hence $B(7, 5)$.
- Point C is at a distance of 6 units from 'O' along OX & at a distance of 3 units from 'O' along OY. Hence $C(6, 3)$.
- Point D is at a distance of 3 units from 'O' along OX & at a distance of 3 units from 'O' along OY. Hence $D(3, 3)$.
- Point P is at a distance of 7 units from 'O' along OX & at a distance of 4 units from 'O' along OY. Hence $P(7, 4)$.
- Point Q is at a distance of 9 units from 'O' along OX & at a distance of 5 units from 'O' along OY. Hence $Q(9, 5)$.
- Point R is at a distance of 9 units from 'O' along OX & at a distance of 3 units from 'O' along OY. Hence $R(9, 3)$.
- Points X, Y, Z & 'O' form a square when joined.
- Points A, B, C, D form a parallelogram.
- Points P, Q, R form a triangle.



⑦

(i) Statement is true because when a point whose x -coordinate is zero is at a distance of 0 units from 'O' along Ox . Therefore it lies on y -axis.

(ii) Statement is true because when a point whose y -coordinate is zero is at a distance of zero units from 'O' along Ox . Hence it lies on x -axis.

(iii) The statement is false because the origin cannot be necessarily be $(0,0)$ always. It ~~take~~ can take any coordinate.

(iv) The statement is true because when these points are joined form a line which passes through origin.

