Introduction To Graphs Ex-27.1

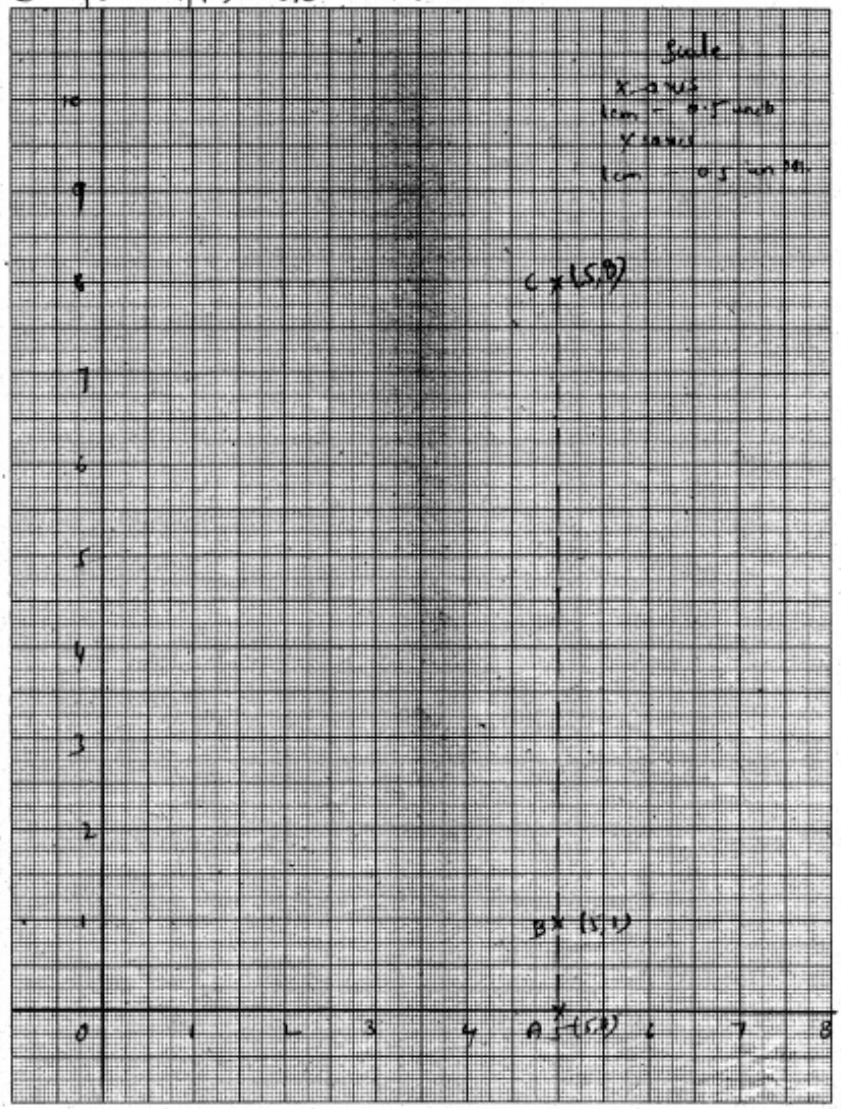
Introduction to Graphs

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 1cm represents 0.5 units.
- In order to plot A we need to start from origin O & move 10cm along OX, Hence point A(5,0) is plotted.
- In order to plot B we need to start from origin O & move 10cm along OX & then from there move 2cm along OY. Hence we get point B(5,1).
- for point C, start from origin & move 10cm along OX & then from there move 16cm along OY. Hence point C(5,8) is plotted.
- From the graph we can conclude that points A, B, C are collinear.

① points A, B, C are collinear



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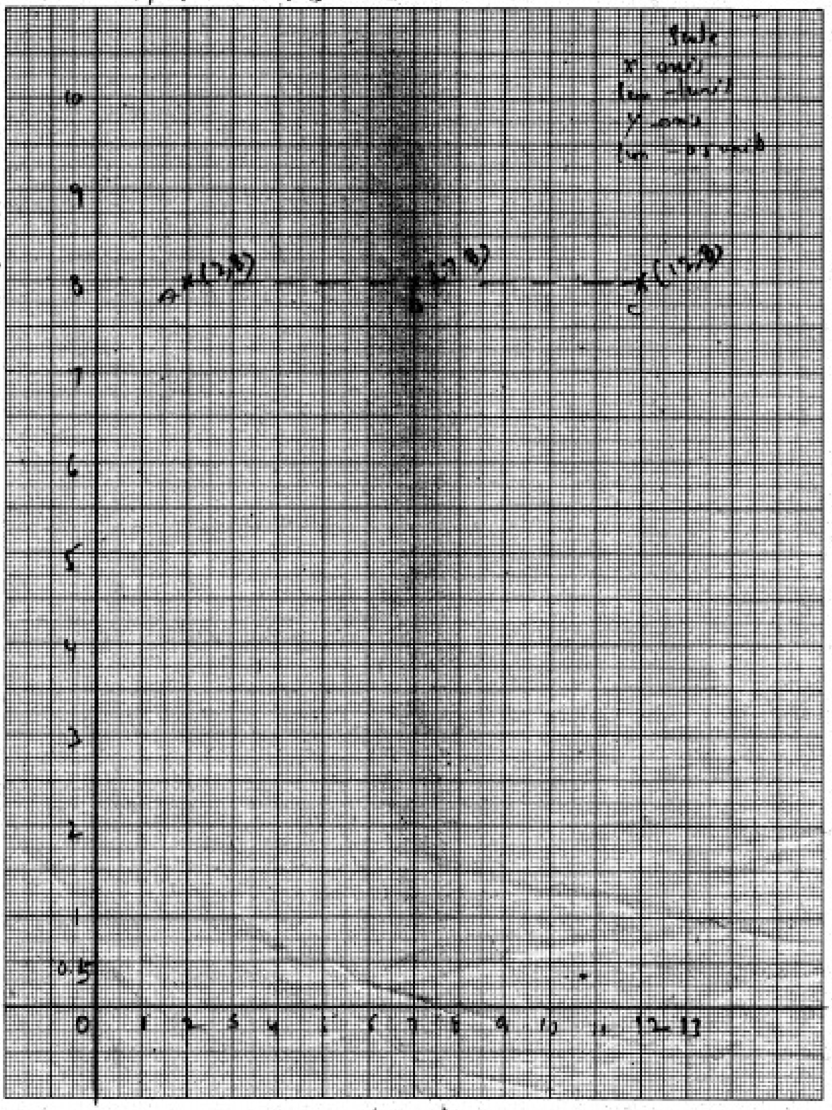
(9)

- 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)

points A, B, C are collinear



(3)

- Take a point 'O' on a graph & draw two lines OX & OY from 'O' & both perpendicular.
- Take the scale along x-axis as 1cm = 0.5 unit & along y-axis as 1cm = 0.5 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, start from 'O' move 4cm along OX & then from there move 8 cm 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 4 cm along OY.

→ To plot S, from 'O' move 4cm along OX & then from there move 2cm along OY. Hence point S (2,0) is plotted.

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

(iii)

→ In order to plot point X, from 'O' move 6 cm 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 6 cm 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.

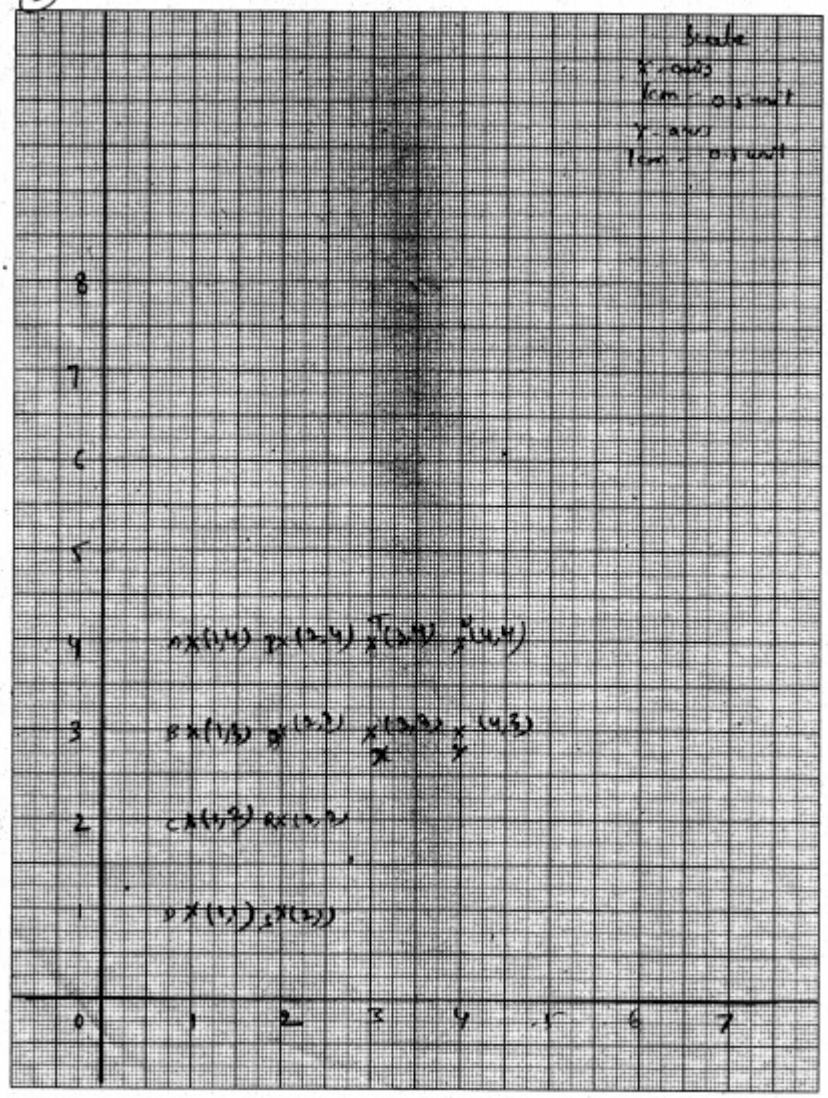
— points B, Q, X, Y are plotted & are collinear.

(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.

(3)



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(4)

- Given in graph, the scale is given as along ox 1cm = 1unit & along OY 1cm = 1unit
- Point A is ~~at for form plotted when~~ at a distance of 1unit from OX & 1unit 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 1cm = 2 units with unit 10 as the starting number & along y-axis 1cm = 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)

- 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 1cm = 1unit & along OY is 1cm = 1unit.
- 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 at a distance~~ 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 triagle.

(7)

(i) Statement is true because when a point whose x-coordinate is zero is at a distance of 0 units from '0' 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 oy. Hence it lies on x-axis.

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

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