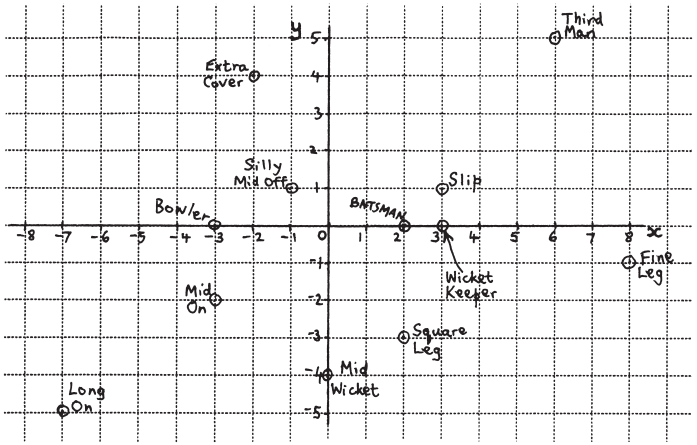
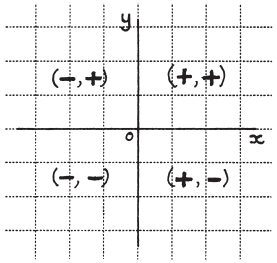
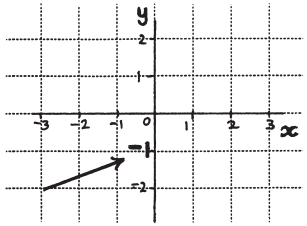
10 The diagram shows the rough positions of a fielding cricket team. The coordinates of the batsman are (2,0). Make a list of the names and write the correct coordinates against each name.



Remember which signs fit which regions.



When you are drawing axes, make quite sure that –1 on the y axis is numbered correctly (It is the next line below the x axis.).



11 (a) Draw x and y axes from –5 to +5 each, with the origin (0,0) in the centre.
(b) Plot points A (5,0), B (–1,3), C (2,–3), D (5,–3). Join AB, BC, CD, DA to form a quadrilateral. Write inside the quadrilateral which special kind it is.
(c) Repeat (b), but instead of ABCD, plot and join E (1,4), F (–2,3), G (–5,4), H (–2,5). Write which special kind of quadrilateral you have drawn.
(d) Repeat (b) again, but instead of ABCD, plot and join P(1,–3), Q (–3,1), R (–5, –2), S (–2, –5). Write which special kind of quadrilateral it is.

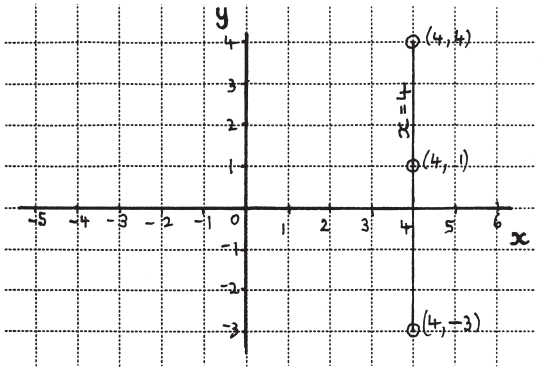
12 (a) Draw x and y axes from –10 to +10. Plot these points:–
A (–6,0), B (–7, –1), C (–8, –1), D (–6, 1), E (–7,3), F (–9,6), G (–10,9), H (–7,6), J (–9,9), K (–7,8), L (–4,4), O (0,0), M (4,–6), N (7,–8), P (9,–8), Q (5,–9), R (2,–8), S (2,–10), T (0,–10), U (1,–8), V (–2,–5), W (–2,–7), X (–4,–10), Y (–6,–10), Z (–4,–8), AA (–4,–6), BB (–5,–1), CC (–6,–2), DD (–7,–2), EE (–5,0).
(b) Join the points in the same order as shown above (AB, BC, CD, etc.) with straight lines to make a graphosaurus (a new kind of tyrannosaurus).
(c) Complete the graphosaurus by plotting point I (–6½, 6½). Draw a ring round the point.

STRAIGHT-LINE GRAPHS

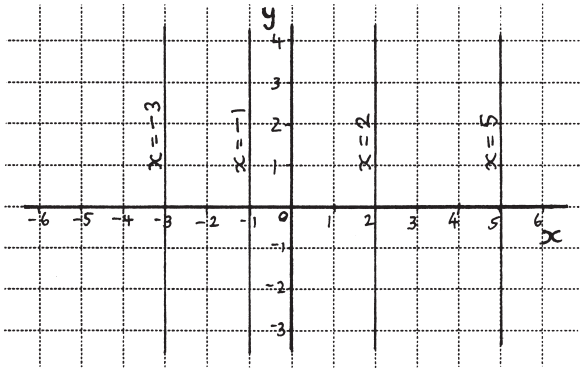
VERTICAL AND HORIZONTAL GRAPHS

If, for example, the points (4,1), (4,4) and (4,–3) are joined, the result is a vertical straight line. This line is the GRAPH of x=4 because all points on the line have an x coordinate of 4.

The EQUATION of the graph is x=4.



Other similar graphs can be drawn in a similar way, e.g.



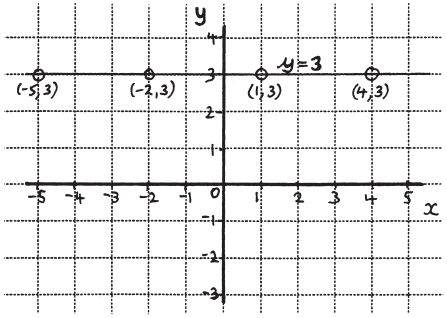
A straight line graph goes on for ever in both directions. When you are drawing a straight line graph, always produce (extend) it as far as you can in both directions.

NOTE. The graph of x=0 is the same line as the y axis.

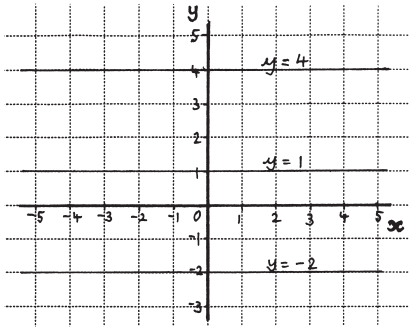
13 (a) Draw x and y axes with the origin in the centre.
(b) Plot points (3,5), (3,0), (3,–4). Join the points with a line and produce the line as far as you can in both directions. Label the line (write next to it) x=3.
(c) Plot points (6,2), (6,4), (6,–3). Join to make a straight line graph. Label the graph with the correct equation.
(d) Plot (–4,0), (–4,4), (–4,–5). Draw a straight line graph through these points and label the graph with the correct equation.
(e) Using the same axes, draw and label the graphs of x=1 and x=–2. All the graphs you have drawn should be PARALLEL.

If, for example, the points (4,3), (1,3), (–2,3) and (–5,3) are joined, the result is a horizontal straight line. This is the graph of y=3 because all the points on the line have a y coordinate of 3.

The EQUATION of the graph is y=3.



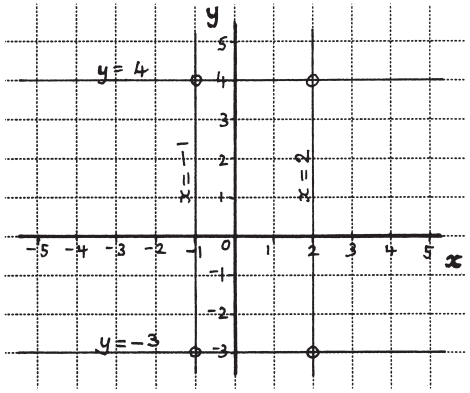
Other similar graphs can be drawn in a similar way, e.g.



NOTE. The graph of y=0 is the same line as the x axis.

Points of intersection

The point of intersection of two graphs is the point where the two graphs meet or cross, e.g.



The point (–1,4) is the intersection of the graphs x= –1 and y=4. The point (2,4) is the intersection of the graphs x=2 and y=4. Which graphs intersect at (–1,–3) and (2,–3)?

14 (a) Draw x and y axes with the origin in the centre.
(b) Plot points (0,2), (5,2), (–4,2). Join the points and produce the line in both directions. Label the line y=2.
(c) Plot points (1,–4), (4,–4), (–5,–4). Draw a straight line graph through these points and label the graph with the correct equation.
(d) Using the same axes, draw the graph of x=4.
(e) What are the coordinates of the point of intersection of x=4 and y=2?
(f) Using the same axes, draw the graphs of
(i) x=–2, (ii) y=5, (iii) x=1, (iv) y=–2

---

15 This is a simplified street plan of part of San Francisco (U.S.A.). On this plan the streets have been numbered –5 to +5 on the x and y axes. Each street represents a graph, e.g. Larkin Street is x=5, Bush Street is y=–4, etc. The intersection of Buchanan Street and Broadway is (–2,4), etc.

From the plan above write down the graph of
(a) Polk Street, (b), Washington Street, (c) Fillmore Street, (d) California Street, (e) Clay Street.
Which street has each of these graphs?
(f) x=3, (g) x=–1, (h) y=4, (i) x=0, (j) y=–4

---

16 From the plan above, find the coordinates of intersection of
(a) Gough Street and Bush Street
(b) Fillmore Street and Jackson Street
(c) Van Ness Avenue and Clay Street
(d) Polk Street and Broadway
(e) Steiner Street and California Street

Write down which streets intersect at each of these points
(f) (–1,–1), (g) (0,–5), (h) (–3,3), (i) (2,–1), (j) (5,5)