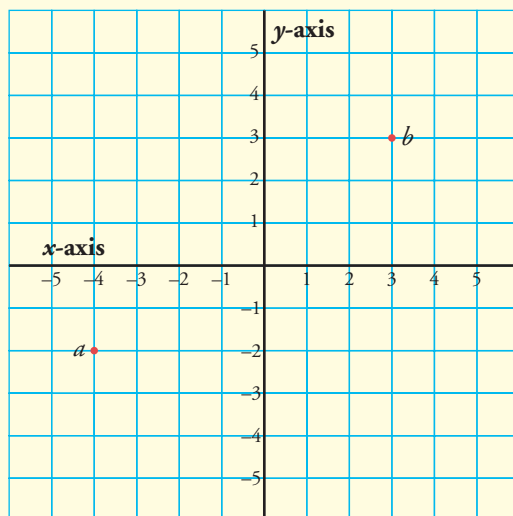


 chapter 14 review

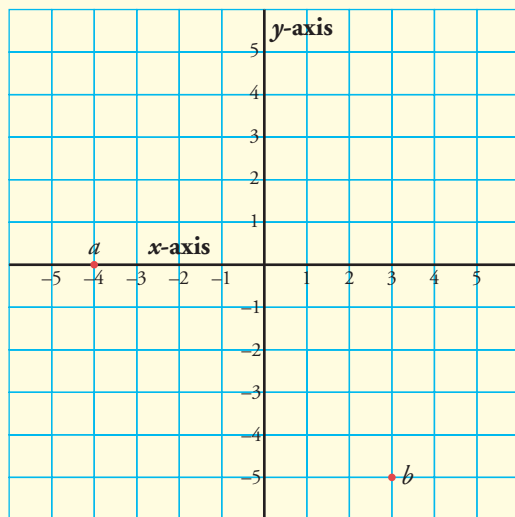
1. (a) ∇ a is the point $(1, 3)$ and b is the point $(-2, -1)$.
Plot the points a and b .
- (b) ∇ p is the point $(3, 2)$ and q is the point $(4, 5)$.
Find each of the following:
- (i) the length of $[pq]$
 - (ii) the slope of pq
 - (iii) the equation of the line pq .
- (c) ∇ L is the line $x - y - 4 = 0$. L cuts the x -axis at a and the y -axis at b .
- (i) Find the coordinates of the point a and the point b .
 - (ii) Show that the point $(5, -1)$ is on the line L .
 - (iii) The point $(k, 2)$ is on the line L . Find the value of k .
2. (a) The points a and b are shown on the diagram. Write down the coordinates of the points a and b .



- (b) ∇ p is the point $(-1, -1)$ and q is the point $(-4, -2)$.
Find each of the following:
- (i) the length of $[pq]$
 - (ii) the slope of pq
 - (iii) the midpoint of $[pq]$.

- (c) (i) ∇ The point $(2t, t)$ is on the line $x - 5y - 3 = 0$.
Find the value of t .
- (ii) ∇ The line K has a slope of -3 and contains the point $(-1, 4)$.
Find the equation of K .
3. (a) ∇ a is the point $(2, 3)$. Find the image of a under:
- (i) central symmetry in the origin, S_o
- (ii) axial symmetry in the y -axis, S_y .
- (b) ∇ p is the point $(1, -7)$ and q is the point $(-2, -5)$.
Find each of the following:
- (i) the length of $[pq]$
- (ii) the slope of pq
- (iii) the equation of the line pq .
- (c) ∇ L is the line $7x - 2y + 14 = 0$. L cuts the x -axis at a and the y -axis at b .
- (i) Find the coordinates of the point a and the point b .
- (ii) Draw the graph of L . (Hint: Your scale on the y -axis needs to go up to at least 7.)
- (iii) Use the graph to find the area of the triangle aob , where o is the origin.
4. (a) ∇ $a(2, -3)$ and $b(-4, 9)$ are two points.
Find (i) the slope of ab (ii) the length of the line segment $[ab]$.
- (b) ∇ The line $2x + 3y - 9 = 0$ cuts the x -axis at p and the y -axis at q .
- (i) Find the coordinates of p and the coordinates of q .
- (ii) Find the area of the triangle poq where o is the origin.
- (c) ∇ The point r has coordinates $(0, 2)$.
 t is the image of r under the translation $p(-2, -4) \rightarrow q(2, -1)$.
- (i) Find the coordinates of the point t .
- (ii) Verify that $|pq| = |tr|$.

5. (a) ∇ p is the point $(-1, 0)$. q is the point $(0, -2)$. Plot the points p and q .



- (b) ∇ Two points a and b are shown on the diagram.
- Find the coordinates of a and b .
 - Find the images of a and b under axial symmetry in the y -axis.
- (c) ∇ P is a line $x - 2y + 2 = 0$ and Q is a line $x + y - 4 = 0$.
By finding where these lines cut the x -axis and the y -axis, graph the lines on the same diagram.
Use your graph to find the coordinates of the point where the lines P and Q cut.
6. (a) ∇ $a(1, 4)$ and $b(-3, -3)$ are two points.
Find (i) the slope of ab (ii) the equation of ab .
- (b) ∇ K is the line $x + 6y - 2 = 0$. The points $p(t, 1)$ and $q(8, r)$ are on the line K .
- Find the value of t and the value of r .
 - Write down the coordinates of p and the coordinates of q .
 - Find the slope of the line K by using the point p and the point q .
 - Find the midpoint of $[pq]$.
 - Find the equation of the line through the midpoint of $[pq]$ which has a slope of 2.