

**Internal and external division of lines**[Solutions](#)   [Main Menu](#)

- 51 What are the coordinates of the point that divides the interval joining the points  $A(7,1)$  and  $B(0,-6)$  internally in the ratio 4:3?
- (A)  $(3,-3)$   
 (B)  $(3,-2)$   
 (C)  $(4,-2)$   
 (D)  $(4,-3)$
- 52 What are the coordinates of the point that divides the interval joining the points  $A(-1,1)$  and  $B(3,-1)$  internally in the ratio 1:3?
- (A)  $(\frac{2}{3}, \frac{1}{2})$   
 (B)  $(\frac{2}{3}, 1)$   
 (C)  $(0,1)$   
 (D)  $(0, \frac{1}{2})$
- 53 What are the coordinates of the point  $P$  that divides internally the interval joining the points  $A(1,2)$  and  $B(7,5)$  in the ratio 2:1?
- (A)  $(3,3)$   
 (B)  $(3,4)$   
 (C)  $(5,3)$   
 (D)  $(5,4)$
- 54 The interval  $DE$ , where  $D$  is  $(4,5)$  and  $E$  is  $(19,-5)$ , is divided internally in the ratio 2:3 by the point  $(x,y)$ . What are the values of  $x$  and  $y$ ?
- (A)  $(-16,25)$   
 (B)  $(10,1)$   
 (C)  $(12,0)$   
 (D)  $(13,-1)$

- 55 What are the coordinates of the point that divides the interval joining the points  $A(1,1)$  and  $B(5,3)$  externally in the ratio 2:3?
- (A)  $(-7,-3)$   
 (B)  $(-7,1)$   
 (C)  $(-13,1)$   
 (D)  $(-13,-3)$
- 56 What are the coordinates of the point that divides the interval joining the points  $A(-7,5)$  and  $B(-1,-7)$  externally in the ratio 1:3?
- (A)  $(-10,8)$   
 (B)  $(-10,11)$   
 (C)  $(2,8)$   
 (D)  $(2,11)$
- 57 What are the coordinates of the point  $P$  that divides externally the interval joining the points  $A(-5,6)$  and  $B(1,0)$  in the ratio 3:1?
- (A)  $(2,-3)$   
 (B)  $(2, -1\frac{1}{2})$   
 (C)  $(4,-3)$   
 (D)  $(4, -1\frac{1}{2})$
- 58 The point  $P$  divides the interval  $AB$  joining  $A(-4,-3)$  and  $B(1,5)$  externally in the ratio 3:2. What are the coordinates of  $P$ ?
- (A)  $(-14,-19)$   
 (B)  $(-11,-21)$   
 (C)  $(11,21)$   
 (D)  $(14,19)$
- 59 The interval joining the points  $A(1,3)$  and  $B(a,b)$  is divided internally in the ratio 2:3 by the point  $(3,13)$ . What are the values of  $a$  and  $b$ ?
- (A)  $a = 6$  and  $b = 28$   
 (B)  $a = 6$  and  $b = 37$   
 (C)  $a = 9$  and  $b = 28$   
 (D)  $a = 9$  and  $b = 37$

60 The interval joining the points  $A(-3, -5)$  and  $B(a, b)$  is divided externally in the ratio 2:5 by the point  $(-7, -13)$ . What are the values of  $a$  and  $b$ ?

- (A)  $a = -3$  and  $b = 7$
- (B)  $a = -3$  and  $b = -32$
- (C)  $a = 3$  and  $b = -32$
- (D)  $a = 3$  and  $b = 7$

61 The interval joining the points  $A(9, 12)$  and  $B(1, b)$  is divided internally in the ratio 2:1 by the point  $(a, 0)$ . What are the values of  $a$  and  $b$ ?

- (A)  $a = \frac{11}{3}$  and  $b = -6$
- (B)  $a = \frac{11}{3}$  and  $b = -24$
- (C)  $a = \frac{19}{3}$  and  $b = -6$
- (D)  $a = \frac{19}{3}$  and  $b = -24$

62 The interval joining the points  $A(-1, 1)$  and  $B(3, b)$  is divided externally in the ratio 3:1 by the point  $(a, -2)$ . What are the values of  $a$  and  $b$ ?

- (A)  $a = -5$  and  $b = -1$
- (B)  $a = -5$  and  $b = 1$
- (C)  $a = 5$  and  $b = -1$
- (D)  $a = 5$  and  $b = 1$

Internal and external division of lines into given ratios		Main Menu
	Solution	Criteria
51	$x = \frac{mx_2 + nx_1}{m+n} = \frac{4 \times 0 + 3 \times 7}{4+3} = 3$ $y = \frac{my_2 + ny_1}{m+n} = \frac{4 \times -6 + 3 \times 1}{4+3} = -3$ <p>The coordinates of point are (3, -3)</p>	1 Mark: A
52	$x = \frac{mx_2 + nx_1}{m+n} = \frac{1 \times 3 + 3 \times -1}{1+3} = 0$ $y = \frac{my_2 + ny_1}{m+n} = \frac{1 \times -1 + 3 \times 1}{1+3} = \frac{1}{2}$ <p>The coordinates of point are <math>(0, \frac{1}{2})</math></p>	1 Mark: D
53	$x = \frac{mx_2 + nx_1}{m+n} = \frac{2 \times 7 + 1 \times 1}{2+1} = 5$ $y = \frac{my_2 + ny_1}{m+n} = \frac{2 \times 5 + 1 \times 2}{2+1} = 4$ <p>The coordinates of P are (5, 4)</p>	1 Mark: D
54	$x = \frac{mx_2 + nx_1}{m+n} = \frac{2 \times 19 + 3 \times 4}{2+3} = 10$ $y = \frac{my_2 + ny_1}{m+n} = \frac{2 \times -5 + 3 \times 5}{2+3} = 1$ <p>The values of (x, y) are (10, 1)</p>	1 Mark: B
55	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-2 \times 5 + 3 \times 1}{-2+3} = -7$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-2 \times 3 + 3 \times 1}{-2+3} = -3$ <p>The coordinates of point are (-7, -3)</p>	1 Mark: A
56	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-1 \times -1 + 3 \times -7}{-1+3} = -10$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-1 \times -7 + 3 \times 5}{-1+3} = 11$ <p>The coordinates of point are (-10, 11)</p>	1 Mark: B

57	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-3 \times 1 + 1 \times -5}{-3+1} = 4$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-3 \times 0 + 1 \times 6}{-3+1} = -3$ <p>The coordinates of P are (4, -3)</p>	1 Mark: C
58	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-3 \times 1 + 2 \times -4}{-3+2} = 11$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-3 \times 5 + 2 \times -3}{-3+2} = 21$ <p>The coordinates of P are (11, 21).</p>	1 Mark: C
59	$x = \frac{mx_2 + nx_1}{m+n} = \frac{2 \times a + 3 \times 1}{2+3} = 3$ $y = \frac{my_2 + ny_1}{m+n} = \frac{2 \times b + 3 \times 3}{2+3} = 13$ $15 = 2a + 3$ $2a = 12$ $a = 6$ $65 = 2b + 9$ $2b = 56$ $b = 28$	1 Mark: A
60	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-2 \times a + 5 \times -3}{-2+5} = -7$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-2 \times b + 5 \times -5}{-2+5} = -13$ $-21 = -2a - 15$ $2a = 6$ $a = 3$ $-39 = -2b - 25$ $2b = 14$ $b = 7$	1 Mark: D
61	$x = \frac{mx_2 + nx_1}{m+n} = \frac{2 \times 1 + 1 \times 9}{2+1} = \frac{11}{3}$ $y = \frac{my_2 + ny_1}{m+n} = \frac{2 \times b + 1 \times 12}{2+1} = 0$ $0 = 2b + 12$ $b = -6$	1 Mark: A
62	$x = \frac{mx_2 + nx_1}{m+n} = \frac{-3 \times 3 + 1 \times -1}{-3+1} = 5$ $y = \frac{my_2 + ny_1}{m+n} = \frac{-3 \times b + 1 \times 1}{-3+1} = -2$ $4 = -3b + 1$ $b = -1$	1 Mark: C