

1. Find the midpoint of A(2, 0) and B(-4, 9).

By midpoint formula,

$$\left(\frac{2-4}{2}, \frac{0+9}{2} \right) = (-1, 4.5)$$

2. When M(3, 5) is the midpoint of AB, where A(1, 9). What is the coordinates of B?

	A(1, 9)	
Add 2	M(3,5)	Subtract 4
	B(,)	

Then, B(5, 1)

3. When M(a, 4) is the midpoint of AB, where A(2, 3 - a). What is the coordinates of B?

	A(2, 3 - a)	
Add a - 2	M(a,4)	Add 1 + a
	B(,)	

Then, B(2a - 2, 5 + a)

4. C is a point between A and B of line segment AB, where A(3, 10) and B(10, -11). If AC : CB = 3 : 4, find the coordinates of C.

For x - value, difference between A and B is 7. So, we get $3a + 4a = 7 \rightarrow a = 1$.
Then, we get $3 + 3(1) = 6$ is our x value for C.

For y - value, difference between A and B is -21. So, we get $3b + 4b = -21 \rightarrow b = -3$. Then, we get $10 + 3(-3) = 1$ is our y value for C.

Therefore, C(6, 1)