Midpoint Formula

To find the midpoint of a horizontal line segment, add the coordinates and divide by two.

Ex. Find the midpoint of the horizontal line segment that connects 5 to 7.

$$\frac{x_1 + x_2}{2} = \frac{5+7}{2} = 6$$

To find the midpoint of a vertical line segment, add the coordinates and divide by two.

To find the midpoint of any line segment, add the x-coordinates and divide by two, then add the y-coordinates and divide by 2. Write and answer as an ordered pair.

Midpoint Formula $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

1. Find the midpoint of the line segment that connects (2, 3) to (4, 5).

2. Find the coordinates of the midpoint that connects (1, 8) to (11, 12).

3. Find the coordinates of the midpoint of a segment with A(2,3) and B(4,5) as endpoints.

4. Find the coordinates of the midpoint of a segment with X(1, 7) and Y(9,5) as endpoints.

5. Find the coordinates of the midpoint of the segment that connects (0, 0) to (8, 10).

6. Find the coordinates of the midpoint of the segment that connects (2, –3) to (6, 3).

7. Find the coordinates of the midpoint of a segment with endpoints P(1, 5) and Q(4, 9).
8. Find the midpoint of a line segment that connects (2, 3) to (3, 5).

9. Find the coordinates of the midpoint of the line segment that connects (2, – 4) and (–6, 2).

10. The midpoint of $\overline{XY}$ is M(2, 4). One endpoint X is (–1, 7), find the coordinate of the other endpoint Y.

11. The midpoint of $\overline{XY}$ is M(1, 5). One endpoint X is (–3, 7), find the coordinate of the other endpoint Y.

12. The midpoint of $\overline{XY}$ is M(0, 0). One endpoint X is (3, 2), find the coordinate of the other endpoint Y.

13. The midpoint of $\overline{XY}$ is M(2, –1). One endpoint X is (3, 4), find the coordinate of the other endpoint Y.

14. The midpoint of $\overline{XY}$ is M(–5, 1)). One endpoint X is (–1, 7), find the coordinate of the other endpoint Y.

15. The midpoint of $\overline{XY}$ is M(2, 0). One endpoint X is (–2, 6), find the coordinate of the other endpoint Y.