

G.G.66: Midpoint 2: Find the midpoint of a line segment, given its endpoints

- 1 The coordinates of A are $(-9, 2)$ and the coordinates of G are $(3, 14)$. What are the coordinates of the midpoint of \overline{AG} ?
 - 1) $(-3, 8)$
 - 2) $(-6, 6)$
 - 3) $(-6, 16)$
 - 4) $(-21, -10)$
- 2 What is the midpoint of the line segment that joins points $(4, -2)$ and $(-2, 5)$?
 - 1) $\left(1, \frac{3}{2}\right)$
 - 2) $\left(\frac{3}{2}, 3\right)$
 - 3) $\left(1, \frac{7}{2}\right)$
 - 4) $\left(2, \frac{3}{2}\right)$
- 3 M is the midpoint of \overline{AB} . If the coordinates of A are $(-1, 5)$ and the coordinates of M are $(3, 3)$, what are the coordinates of B ?
 - 1) $(1, 4)$
 - 2) $(2, 8)$
 - 3) $(7, 1)$
 - 4) $(-5, 7)$
- 4 The midpoint of \overline{AB} has coordinates of $(5, -1)$. If the coordinates of A are $(2, -3)$, what are the coordinates of B ?
 - 1) $(8, 1)$
 - 2) $(8, -5)$
 - 3) $(7, 0)$
 - 4) $(3.5, -2)$
- 5 The midpoint of \overline{AB} is $(-1, 5)$ and the coordinates of point A are $(-3, 2)$. What are the coordinates of point B ?
 - 1) $(1, 8)$
 - 2) $(1, 10)$
 - 3) $(0, 7)$
 - 4) $(-5, 8)$
- 6 A line segment on the coordinate plane has endpoints $(2, 4)$ and $(4, y)$. The midpoint of the segment is point $(3, 7)$. What is the value of y ?
 - 1) 11
 - 2) 10
 - 3) 5
 - 4) -2

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Answer Section

1 ANS: 1

$$M_x = \frac{-9+3}{2} = -3. \quad M_y = \frac{2+14}{2} = 8.$$

REF: 080624a

2 ANS: 1

$$M_x = \frac{4+(-2)}{2} = 1. \quad M_y = \frac{-2+5}{2} = \frac{3}{2}.$$

REF: 060822a

3 ANS: 3

$$M_x = \frac{x_A + x_B}{2} \quad M_y = \frac{y_A + y_B}{2}$$

$$3 = \frac{-1 + x_B}{2} \quad 3 = \frac{5 + y_B}{2}$$

$$x_B = 7 \quad y_B = 1$$

REF: 080217a

4 ANS: 1

$$M_x = \frac{x_A + x_B}{2} \quad M_y = \frac{y_A + y_B}{2}$$

$$5 = \frac{2 + x_B}{2} \quad -1 = \frac{-3 + y_B}{2}$$

$$x_B = 8 \quad y_B = 1$$

REF: 010914a

5 ANS: 1

$$M_x = \frac{x_A + x_B}{2} \quad M_y = \frac{y_A + y_B}{2}$$

$$-1 = \frac{-3 + x_B}{2} \quad 5 = \frac{2 + y_B}{2}$$

$$x_B = 1 \quad y_B = 8$$

REF: 010718a

6 ANS: 2

$$M_y = \frac{y_A + y_B}{2}$$

$$7 = \frac{4 + y_B}{2}$$

$$y_B = 10$$

REF: 080515a