

# 10:02 | Midpoint

Name: \_\_\_\_\_

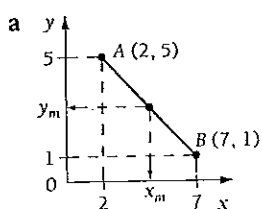
Class: \_\_\_\_\_

## Examples

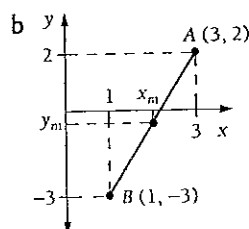


Formula:  $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

1 Read the midpoint of AB.



x-value of midpoint:  
 $x_m = \frac{1}{2}(2 + 7) = 4\frac{1}{2}$   
 y-value of midpoint:  
 $y_m = \frac{1}{2}(5 + 1) = 3$   
 Midpoint is  $(4\frac{1}{2}, 3)$



$x_m = \frac{1}{2}(1 + 3) = 2$   
 $y_m = \frac{1}{2}(-3 + 2) = -\frac{1}{2}$   
 Midpoint is  $(2, -\frac{1}{2})$

2 Find the midpoint of the interval joining:

a (1, 6) to (11, 4)

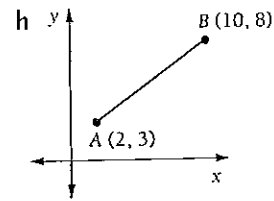
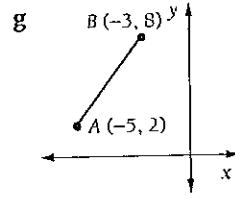
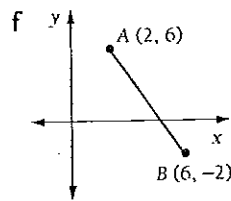
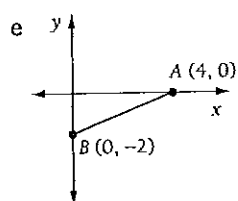
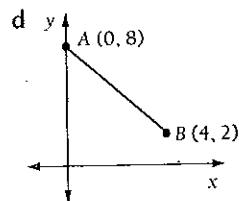
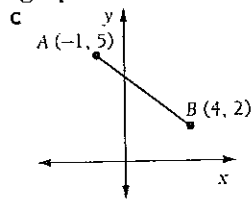
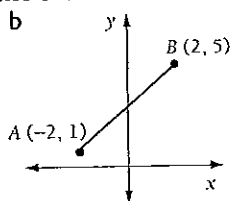
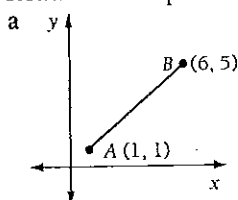
Midpoint =  $\left(\frac{1 + 11}{2}, \frac{6 + 4}{2}\right)$   
 $= \left(\frac{12}{2}, \frac{10}{2}\right)$   
 $= (6, 5)$

b (3, -2) to (5, 5)

Midpoint =  $\left(\frac{3 + 5}{2}, \frac{-2 + 5}{2}\right)$   
 $= \left(\frac{8}{2}, \frac{3}{2}\right)$   
 $= (4, 1\frac{1}{2})$

## Exercise

1 Read the midpoint of the interval AB from the graph.



2 Find the midpoint of the interval that joins:

a (3, 4) to (10, 8)

b (1, 6) to (3, 8)

c (0, 7) to (6, 3)

d (5, 5) to (11, 1)

e (8, 0) to (0, 4)

f (4, 2) to (2, 10)

g (6, 7) to (9, 3)

h (2, 7) to (12, 3)

i (1, 0) to (6, 5)

j (2, 4) to (4, 2)

k (8, 3) to (5, 11)

l (0, 5) to (10, 1)

3 Find the midpoint of the interval that joins:

a (-4, 6) to (-3, -5)

b (-1, 6) to (3, -8)

c (4, -1) to (8, -5)

d (3, 0) to (-5, 4)

e (7, -3) to (-1, -5)

f (0, -6) to (-2, 0)

g (-2, -6) to (-4, -10)

h (-3, 2) to (3, -2)

i (-3, 2) to (7, 8)

j (6, -2) to (-4, 8)

k (1, 0) to (-2, -5)

l (7, -4) to (-3, -10)

10:02 Midpoint

1 a  $(3\frac{1}{2}, 3)$  b  $(0, 3)$  c  $(1\frac{1}{2}, 3\frac{1}{2})$  d  $(2, 5)$  e  $(2, -1)$  f  $(4, 2)$  g  $(-4, 5)$  h  $(6, 5\frac{1}{2})$

2 a  $(6\frac{1}{2}, 6)$  b  $(2, 7)$  c  $(3, 5)$  d  $(8, 3)$  e  $(4, 2)$  f  $(3, 6)$  g  $(7\frac{1}{2}, 5)$  h  $(7, 5)$

i  $(3\frac{1}{2}, 2\frac{1}{2})$  j  $(3, 3)$  k  $(6\frac{1}{2}, 7)$  l  $(5, 3)$

3 a  $(-3\frac{1}{2}, \frac{1}{2})$  b  $(1, -1)$  c  $(6, -3)$  d  $(-1, 2)$  e  $(3, -4)$  f  $(-1, -3)$  g  $(-3, -8)$  h  $(0, 0)$

i  $(2, 5)$  j  $(1, 3)$  k  $(\frac{1}{2}, 2\frac{1}{2})$  l  $(2, -7)$