

HW
pg 54
8-24 even,
28, 36, 40,
46, 47, 58a

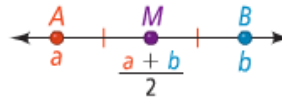
Geometry

Chapter 1
Section 1-7

Finding the Midpoint

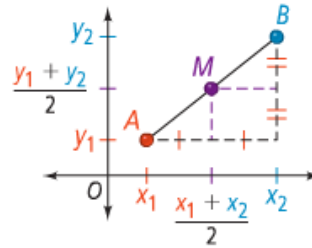
On a number line:

The coordinate of the midpoint is $\frac{a+b}{2}$



In the coordinate plane:

The ordered pair coordinate of the midpoint is $(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2})$



Examples

Find the midpoint of the points $(3,4)$ and $(-3,20)$.

Point B is the midpoint of AC. Points A and B have coordinates $(-7,3)$ and $(4,-1)$. Find the coordinates for point C.

Distance Formula

Take note

Key Concept Distance Formula

The distance between two points $A(x_1, y_1)$ and $B(x_2, y_2)$ is

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}.$$

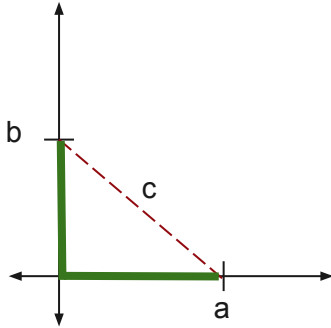


$$a^2 + b^2 = c^2$$

Pythagorean Theorem

Show:

$$a^2 + b^2 = c^2$$



Points: (a,0) and (0,b)

$$\sqrt{(0-a)^2 + (b-0)^2} = c$$

$$\sqrt{(-a)^2 + (b)^2} = c$$

$$\sqrt{a^2 + b^2} = c$$

$$a^2 + b^2 = c^2$$

Using the Distance Formula

Find the distance between points:

$$(4,8) \text{ \& } (7,4) \qquad (2,0) \text{ \& } (5/2, 3/8)$$

$$7-4=3, 4-8=-4$$

$$\sqrt{3^2+4^2}=d$$

$$\sqrt{9+16}=d$$

$$\sqrt{25}=d$$

$$d=5$$

$$3/2-2=1/2, 3/8-0=3/8$$

$$\sqrt{(1/2)^2+(3/8)^2}=d$$

$$\sqrt{(1/4)+(9/64)}=d$$

$$\sqrt{(16/64)+(9/64)}=d$$

$$\sqrt{25/64}=d$$

$$d=5/8$$

Homework

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