



The Midpoint Formula

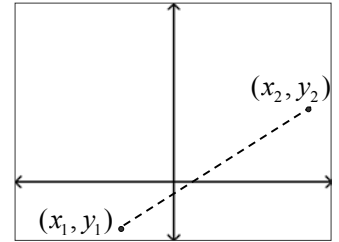
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The Midpoint Formula

We normally want to find the midpoint of two points.

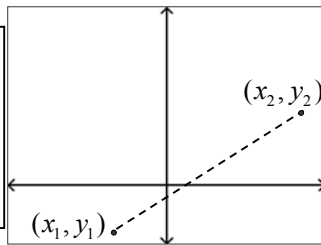


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The Midpoint Formula

Think of "mid"-point as "average"---

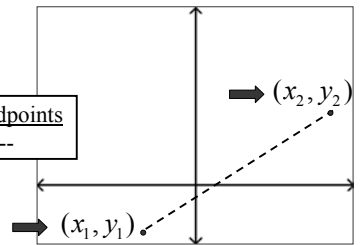
How would you find the "average" of two points?



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The Midpoint Formula

Divide both endpoints by "two"---



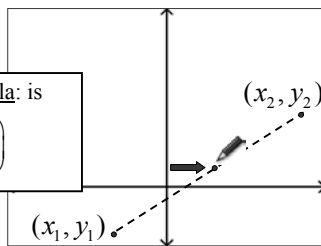
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The Midpoint Formula

Divide by "two"---

So, The Midpoint Formula: is

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



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Math Alert:
We read the Midpoint Formula---
"X sub one plus X sub 2 divided by 2" and
"Y sub one plus Y sub 2 divided by 2."

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



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Remember the midpoint formula!

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



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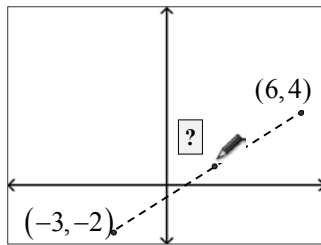
Let's do some midpoint practice



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The Midpoint Formula

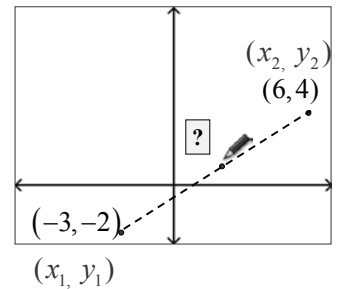
What is the midpoint between $(-3, -2)$ and $(6, 4)$?



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The Midpoint Formula

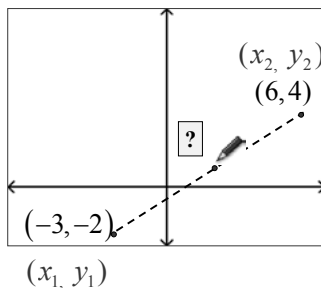
$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$



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The Midpoint Formula

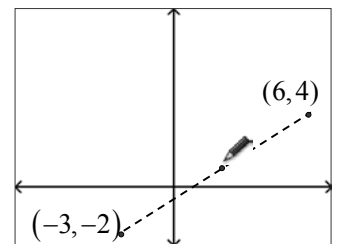
$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$\left(\frac{-3 + 6}{2}, \frac{-2 + 4}{2} \right)$$



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The Midpoint Formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$
$$\left(\frac{-3 + 6}{2}, \frac{-2 + 4}{2} \right)$$
$$\left(\frac{3}{2}, \frac{2}{2} \right) = (1.5, 1)$$

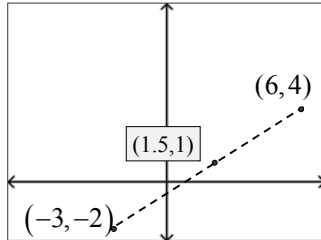


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The Midpoint Formula



$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$
$$\left(\frac{-3 + 6}{2}, \frac{-2 + 4}{2}\right)$$
$$\left(\frac{3}{2}, \frac{2}{2}\right) = (1.5, 1)$$



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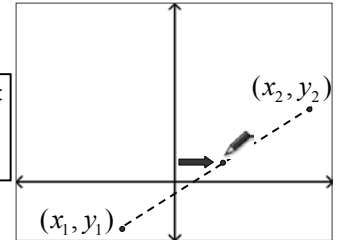
The Midpoint Formula



Divide by "two"---

The Midpoint Formula:

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



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Let's do another problem



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Remember that midpoint formula?



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

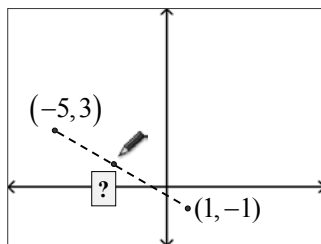


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The Midpoint Formula



What is the midpoint between (-5, 3) and (1, -1)?

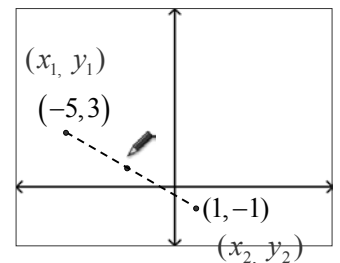


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The Midpoint Formula



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



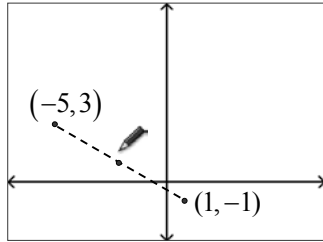
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The Midpoint Formula



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

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



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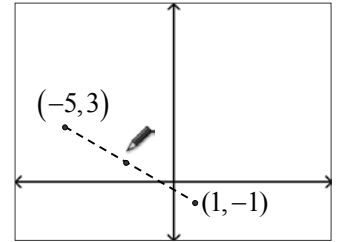
The Midpoint Formula



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

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

$$\left(\frac{-4}{2}, \frac{2}{2} \right) = (-2, 1)$$



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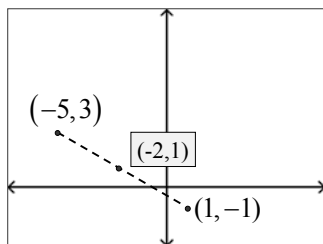
The Midpoint Formula



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

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

$$\left(\frac{-4}{2}, \frac{2}{2} \right) = (-2, 1)$$



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Let's do another midpoint practice

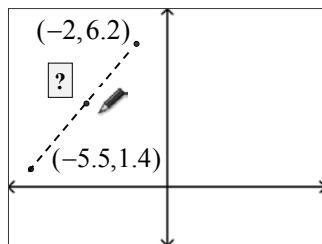


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The Midpoint Formula



What is the midpoint between $(-5.5, 1.4)$ and $(-2, 6.2)$?

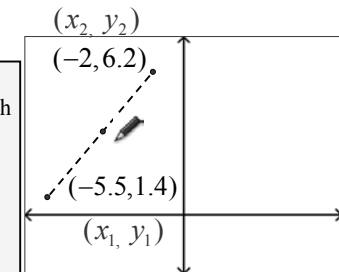


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The Midpoint Formula



Math Alert:
It doesn't matter which ordered pair is labeled (x_1, y_1) or (x_2, y_2)



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The Midpoint Formula



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

(x_2, y_2)

$(-2, 6.2)$

$(-5.5, 1.4)$

(x_1, y_1)



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The Midpoint Formula



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

$$\left(\frac{-5.5 + (-2)}{2}, \frac{1.4 + 6.2}{2} \right)$$

$(-2, 6.2)$

$(-5.5, 1.4)$



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The Midpoint Formula



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

$$\left(\frac{-5.5 + (-2)}{2}, \frac{1.4 + 6.2}{2} \right)$$

$$\left(\frac{-7.5}{2}, \frac{7.6}{2} \right) = (-3.75, 3.8)$$

$(-2, 6.2)$

$(-5.5, 1.4)$



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The Midpoint Formula



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

$$\left(\frac{-5.5 + (-2)}{2}, \frac{1.4 + 6.2}{2} \right)$$

$$\left(\frac{-7.5}{2}, \frac{7.6}{2} \right) = (-3.75, 3.8)$$

$(-2, 6.2)$

$(-5.5, 1.4)$

$(-3.75, 3.8)$



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The Midpoint Formula



Divide by "two"---

The Midpoint Formula:

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

(x_2, y_2)

(x_1, y_1)



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You can do this!



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The Midpoint Formula

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