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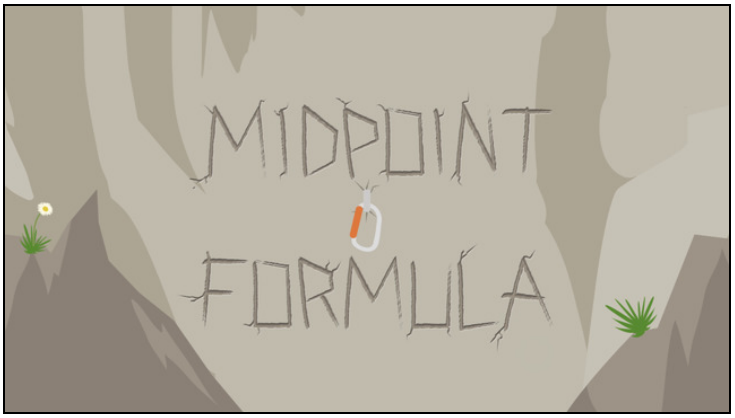
The Midpoint Formula



1. **Identify the midpoint formula.**
2. Determine the midpoint.
3. Calculate the three points.
4. Find the midpoints of the given points.
5. Calculate the meeting point of Imke and her friend.
6. Find the midpoints of the given points.

\+ with lots of tips, answer keys, and detailed answer explanations for all of the problems.

Identify the midpoint formula.

Choose the correct formula.

A

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

☐

B

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

☐

C

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

☐

D

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

☐

E

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

☐

F

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

☐

Hints for solving these problems

1 of 6

Identify the midpoint formula.

Hint #1

If both points have the same x- or y-coordinate, you get the midpoint as follows:

- The common coordinate stays the same for the midpoint.
- The coordinate not in common is the arithmetic middle of the given (two) coordinates.

Hint #2

For example, the midpoint of $(4,4)$ and $(6,10)$ is $(5,7)$.

Answers and detailed answer explanations for these problems

1 of 6

Identify the midpoint formula.

Answer key: E

The midpoint of two given points, (x_1, y_1) and (x_2, y_2), is given by the midpoint formula:

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

To get the x-coordinate of the midpoint, add the x-coordinates of the two points and divide the sum by 2. To get the y-coordinate, proceed in an similar fashion with the y-coordinates of the two points.