GEOMETRY · CLASSWORK · SPECIAL ED

Write a Coordinate Proof

SCORE / 25

01 Part A · Practice

Use the Distance, Midpoint, and Slope Formulas with variable coordinates; the algebra proves the statement for every figure.

EXAMPLE

Prove: the diagonals of parallelogram $O(0,0)$, $A(2a,0)$, $B(2a+2b,2c)$, $C(2b,2c)$ bisect each other.

1. Midpoint of $\overline{OB}$: $(a+b,c)$.
2. Midpoint of $\overline{AC}$: $(a+b,c)$.
3. Same midpoint, so the diagonals bisect each other.

WORDS TO KNOW

bisect	cut into two equal parts
general coordinates	variables that stand for any figure
Midpoint Formula	$\left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

1 ●○○ A rectangle: $O(0,0)$, $A(2u,0)$, $B(2u,2v)$, $C(0,2v)$. Find the midpoint of $\overline{OA}$.

HINT Midpoint: average the x-coordinates and the y-coordinates.

2 ●○○ A parallelogram: $P(0,0)$, $Q(2a,0)$, $R(2a+2b,2c)$, $S(2b,2c)$. Find the length of $\overline{QS}$.

HINT Use the Distance Formula with the variable coordinates.

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Preview - the full worksheet and its answer key are at primeworksheet.com