

Bell Ringer Challenge: The Park Path

Name: _____

Date: _____

15 minutes

A park is shaped like a diamond (square ABCD). The city builds a walking path that connects the MIDDLE of each side. Your job: prove what shape the path is, and find how much of the park sits inside the path.

MIDPOINT

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

Midpoint = ADD then divide by 2. Distance = SUBTRACT, square, add, root.

DISTANCE

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

Shape code

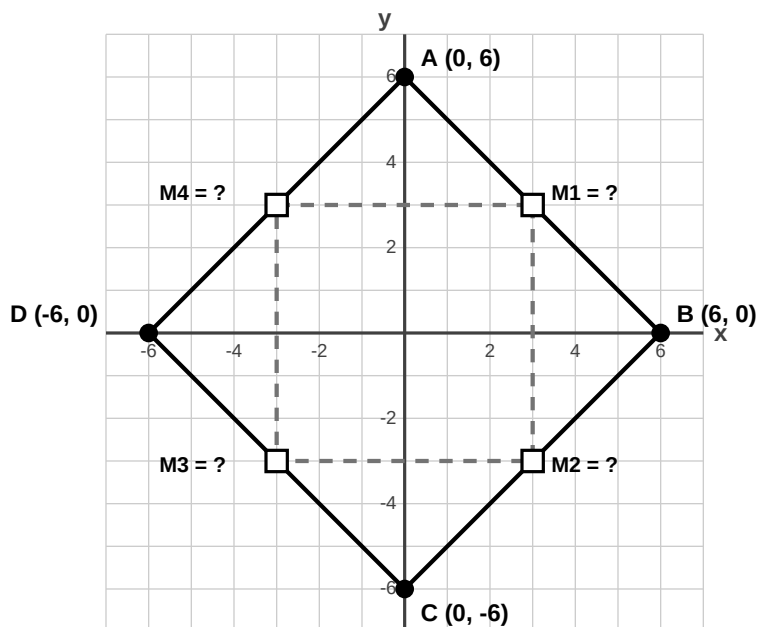
- park corner (given)
- midpoint (you find it)
- the path

To PROVE a square:

1. All 4 sides equal
(distance formula)
2. Right angles
(perpendicular sides)

Praxis trap:

"It LOOKS like a square"
is not a proof. You must
show it with numbers.



1 | Find the four midpoints of the sides

M1 of AB = (____, ____)

M2 of BC = (____, ____)

M3 of CD = (____, ____)

M4 of DA = (____, ____)

2 | Prove the path is a square

a) Length of one path side, M1 to M2: $d = \sqrt{(\text{____})^2 + (\text{____})^2} = \text{_____}$

b) Why are the corners of the path right angles? _____

3 | Compare the areas

Side of park (use distance A to B) = _____ Area of park = _____

Side of path square = _____ Area inside path = _____

The path square is what FRACTION of the park? _____

★ Star challenge (Praxis style):

Connect the midpoints of the sides of ANY quadrilateral (not a square).

What shape do you ALWAYS get? _____