Day 1 – Proving All Parallelograms

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1. **The vertices of triangle JEN are J(2, 10), E(6, 4), and N(12, 8). Prove that JEN is an isosceles right triangle.**
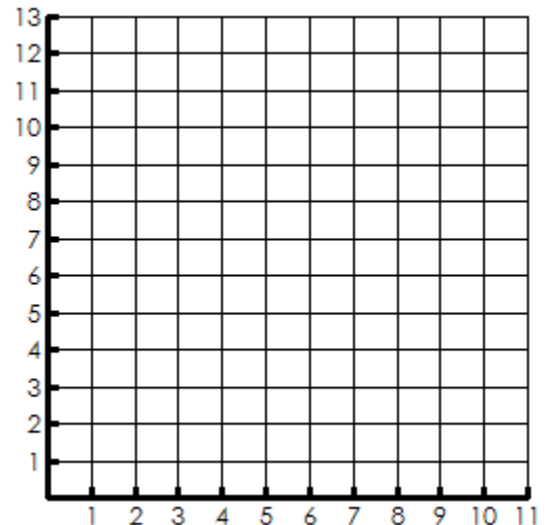
    1. How do you prove it is isosceles? _____

        JE=   **EN=**   **NJ=**

    2. How do you prove it is a right triangle? _____

        JE=   **EN=**   **NJ=**

    3. Is JEN an isosceles right triangle? How do you know?

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2. **A parallelogram has opposite sides congruent and parallel. The vertices of quadrilateral JOHN are J(-3, 1), O(3, 3), H(5, 7), and N(-1, 5). Prove that JOHN is a parallelogram.**

    1. How do you prove opposite sides are congruent?
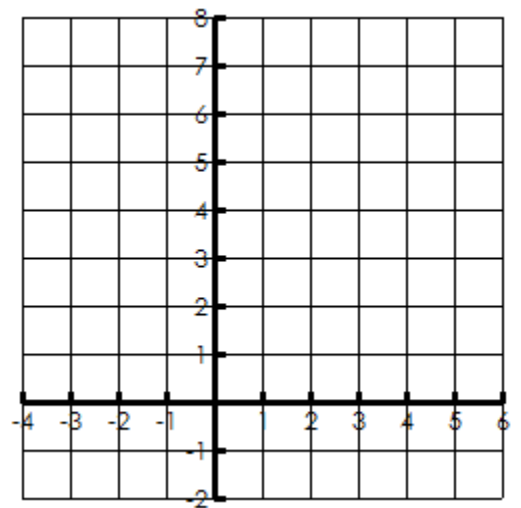
        _____

        JO=   **HN=**

        OH=   **NJ=**

    2. How do you prove opposite sides are parallel?

        _____

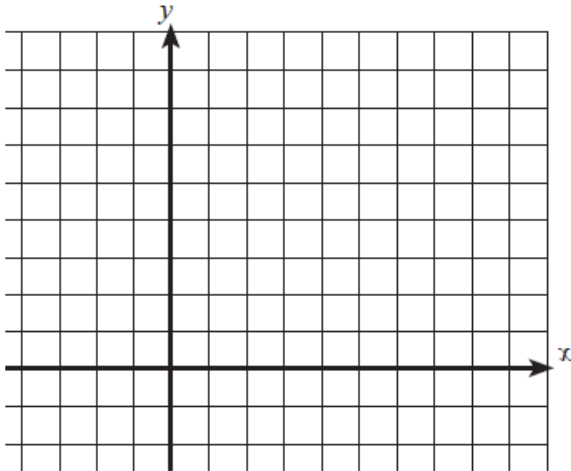   **JO=**   **HN=**

        OH=   **NJ=**

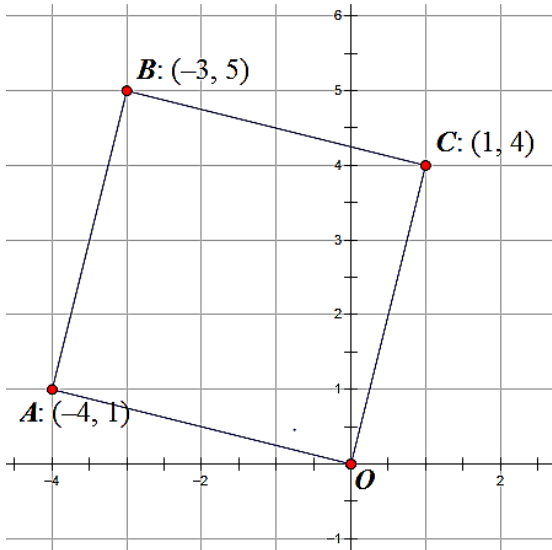   3. Is JOHN a parallelogram? How do you know?

3. Prove that quadrilateral $LEAP$ with the vertices $L(-3,1),E(2,6),A(9,5)$ and $P(4,0)$ is a parallelogram.

Does it have another name? _____

4. The points $O(0,0)$, $A(-4,1)$, $B(-3,5)$, and $C(1,4)$ are the vertices of parallelogram $OABC$. Is this parallelogram a rectangle? Support you answer.

5. Given: $A(-2,2),B(6,5),C(4,0),and$ $D(-4,-3)$. Prove: $ABCD$ is a parallelogram but _not_ a rectangle.