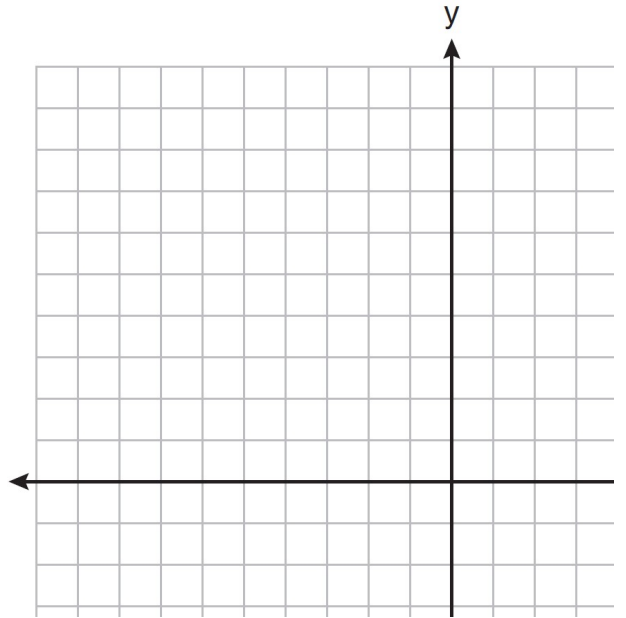


Name _____
Mr. Schlansky

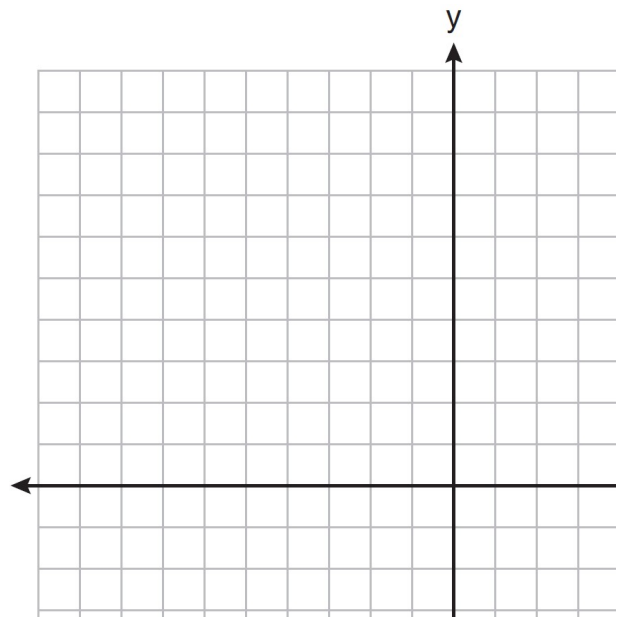
Date _____
Geometry

Coordinate Geometry Proofs Applications

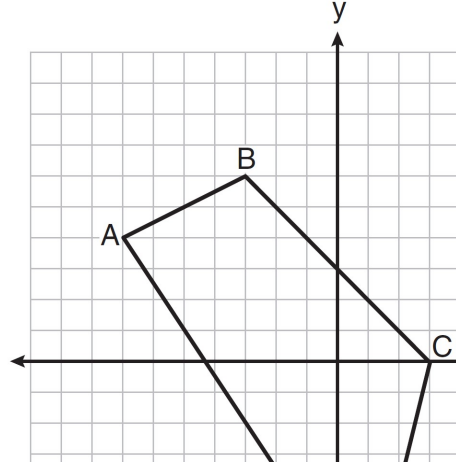
1. Given: $\triangle ABC$ with vertices $A(-6, -2)$, $B(2, 8)$, and $C(6, -2)$. \overline{AB} has midpoint D , \overline{BC} has midpoint E , and \overline{AC} has midpoint F .
Prove: $ADEF$ is a parallelogram
 $ADEF$ is *not* a rhombus
[The use of the grid is optional.]



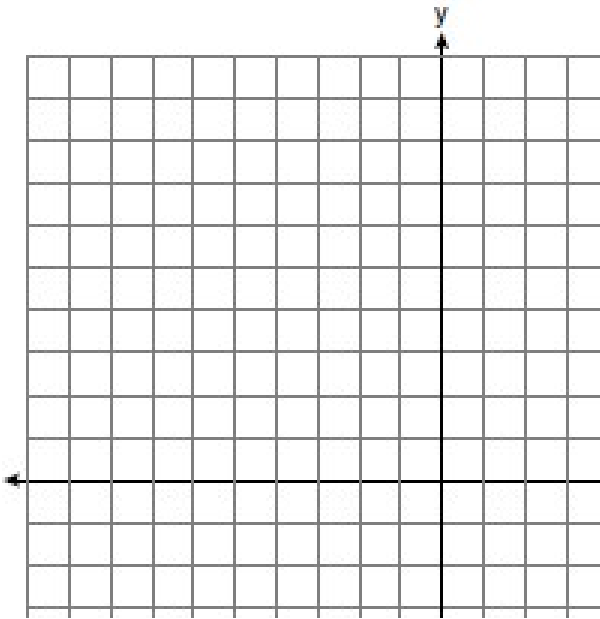
2. The vertices of rectangle NRQW are $N(-2, 5)$, $R(2, 5)$, $Q(2, -3)$, and $W(-2, -3)$. If A is the midpoint of \overline{NR} , B is the midpoint of \overline{RQ} , C is the midpoint of \overline{QW} , and D is the midpoint of \overline{WN} , prove that $ABCD$ is a parallelogram but *not* a rhombus.



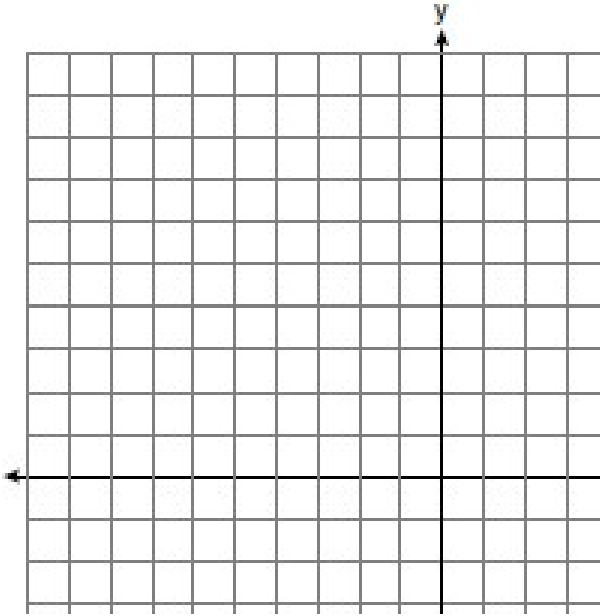
3. Quadrilateral $ABCD$ with vertices $A(-7,4)$, $B(-3,6)$, $C(3,0)$, and $D(1,-8)$ is graphed on the set of axes below. Quadrilateral $MNPQ$ is formed by joining M , N , P , and Q , the midpoints of \overline{AB} , \overline{BC} , \overline{CD} , and \overline{AD} , respectively. Prove that quadrilateral $MNPQ$ is a parallelogram. Prove that quadrilateral $MNPQ$ is *not* a rhombus.



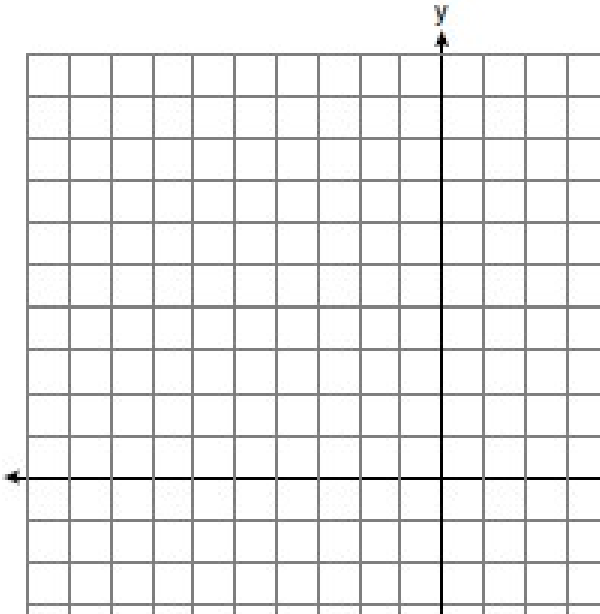
4. In the coordinate plane, the vertices of $\triangle RST$ are $R(6,-1)$, $S(1,-4)$, and $T(-5,6)$. Prove that $\triangle RST$ is a right triangle. State the coordinates of point P such that quadrilateral $RSTP$ is a rectangle. Prove that your quadrilateral $RSTP$ is a rectangle. [The use of the set of axes below is optional.]



5. In the coordinate plane, the vertices of Triangle ABC are $A(0,10)$ $B(5,0)$ and $C(8,4)$. Prove that Triangle ABC is a right triangle. State the coordinates of point P such that quadrilateral $ABCP$ is a rectangle. Prove that your quadrilateral $ABCP$ is a rectangle.



6. Triangle ABC has vertices with $A(x, 3)$, $B(-3, -1)$, and $C(-1, -4)$. Determine and state a value of x that would make triangle ABC a right triangle. Justify why $\triangle ABC$ is a right triangle. [The use of the set of axes below is optional.]



7. Triangle ABC has vertices $A(0,2)$, $B(2,3)$, and $C(1,x)$. Determine and state a value of x that would make triangle ABC a right triangle. Justify why $\triangle ABC$ is a right triangle.

