Name: _____ Date: _____

UNIT 7 **LESSON 12**

AIM: HOW DO WE COMPELTE "NOT" COORDINATE PROOFS?

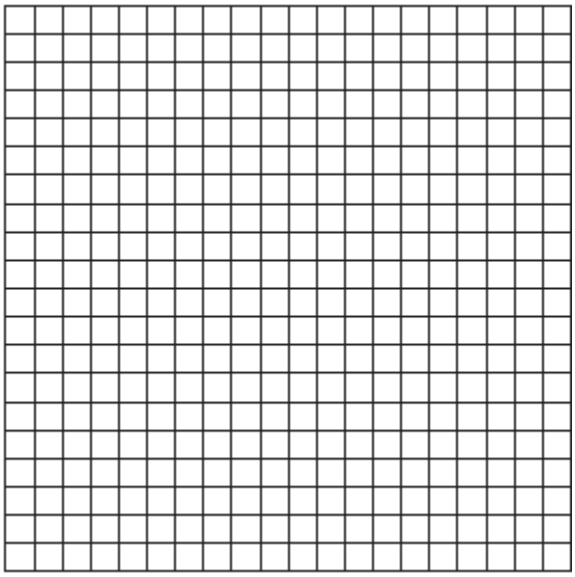
Do Now: Place check marks in the appropriate boxes for the following properties of quadrilaterals.

	OPPOSITE SIDES ARE CONGUENT	OPPOSITE SIDES ARE PARALLEL	ALL SIDES ARE CONGRUENT	OPPOSITE ANGLES ARE CONGRUENT	ALL ANGLES ARE CONGRUENT	DIAGONALS ARE PERPENDICULAR	DIAGONALS ARE CONGRUENT
PARALLELOGRAMS							
RECTANGLES							
RHOMBUS							
SQUARES							
TRAPEZOID							
ISOSCELES TRAPEZOID							

When we are trying to prove something is **NOT** a certain quadrilateral, we complete the same steps as if it were and make our conclusions to prove the properties of the quadrilaterals are ***not*** met.

1) Given: $A(-2,2)$, $B(6,5)$, $C(4,0)$, $D(-4,-3)$

Prove: *ABCD* is a parallelogram but not a rectangle. [The use of the grid is optional.]

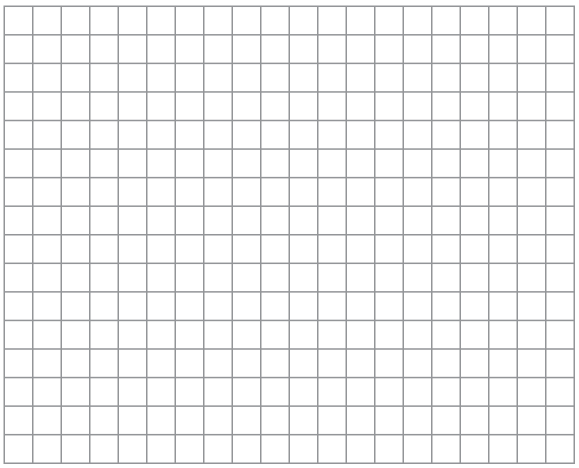


CONCLUSION: _____

2) Given: Quadrilateral *ABCD* has vertices $A(-5,6)$, $B(6,6)$, $C(8,-3)$, and $D(-3,-3)$.

Prove: Quadrilateral *ABCD* is a parallelogram but is neither a rhombus nor a rectangle.

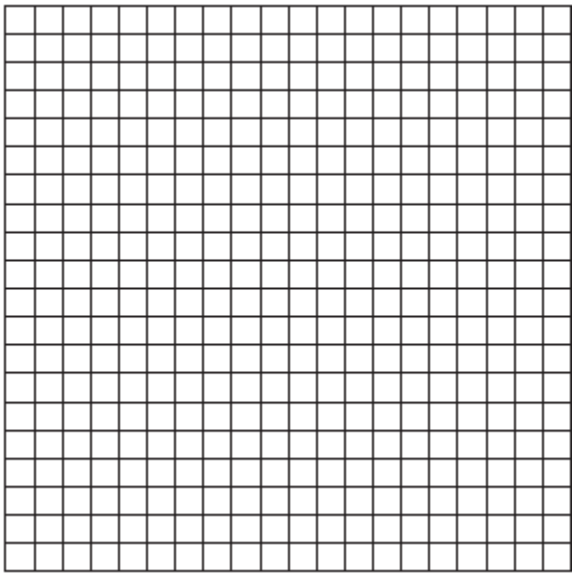
[The use of the grid below is optional.]



CONCLUSION: _____

_____

3) Jim is experimenting with a new drawing program on his computer. He created quadrilateral *TEAM* with coordinates $T(-2,3)$, $E(-5,-4)$, $A(2,-1)$, and $M(5,6)$. Jim believes that he has created a rhombus but not a square. Prove that Jim is correct. [The use of the grid is optional.]

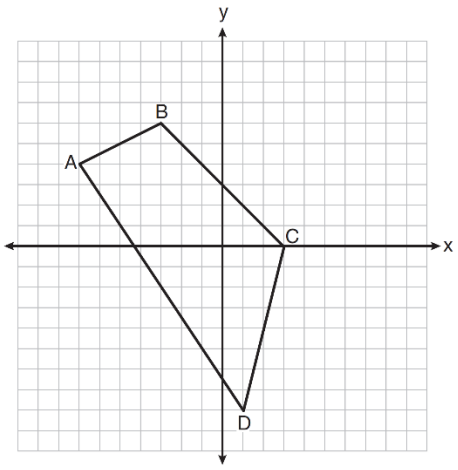


CONCLUSION: _____

_____

4) 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.

a) Quadrilateral *MNPQ* is formed by joining *M*, *N*, *P*, and *Q*, the midpoints of $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, and $\overline{AD}$, respectively. Find *M*, *N*, *P*, and *Q*



b) Prove that quadrilateral *MNPQ* is a parallelogram.

c) Prove that quadrilateral *MNPQ* is *not* a rhombus.

CONCLUSION: _____

_____

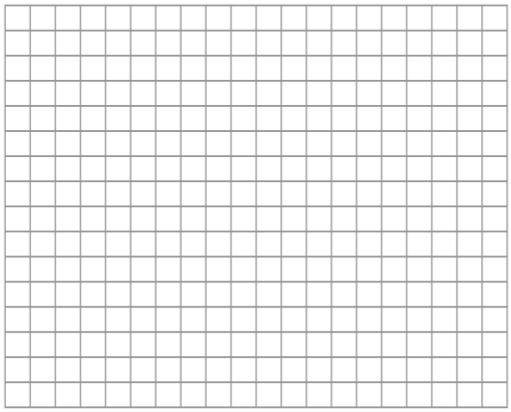
Name: _____ Date: _____

UNIT 7 **LESSON 12 HOMEWORK**

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.*

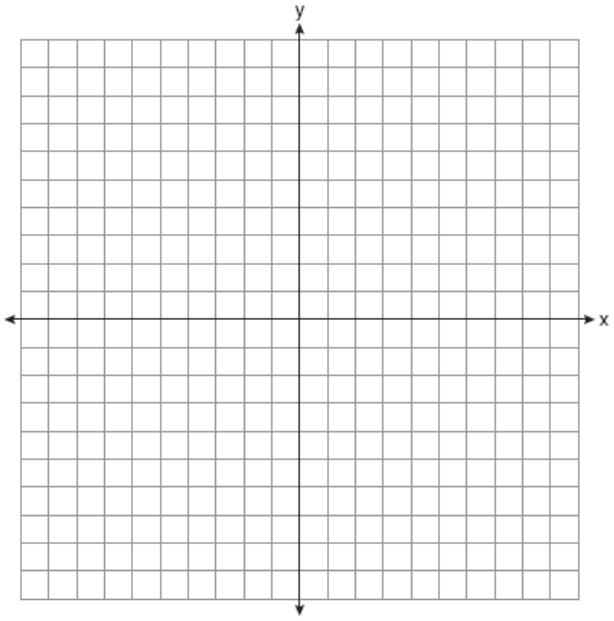
Prove: *ADEF* is a parallelogram *(HINT: Find the midpoints fisrt!)*

ADEF is *not* a rhombus [The use of the grid is optional.]



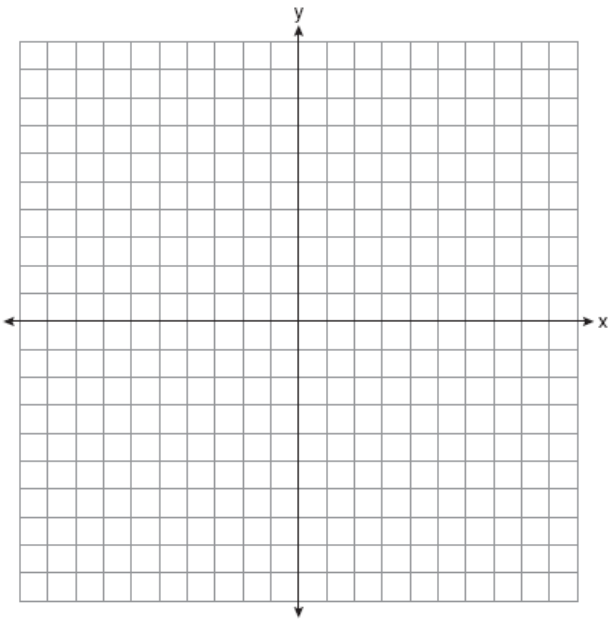
CONCLUSION: _____

2) Quadrilateral *PQRS* has vertices $P(-2,3)$, $Q(3,8)$, $R(4,1)$, and $S(-1,-4)$. Prove that *PQRS* is a rhombus. Prove that *PQRS* is *not* a square. [The use of the set of axes below is optional.]

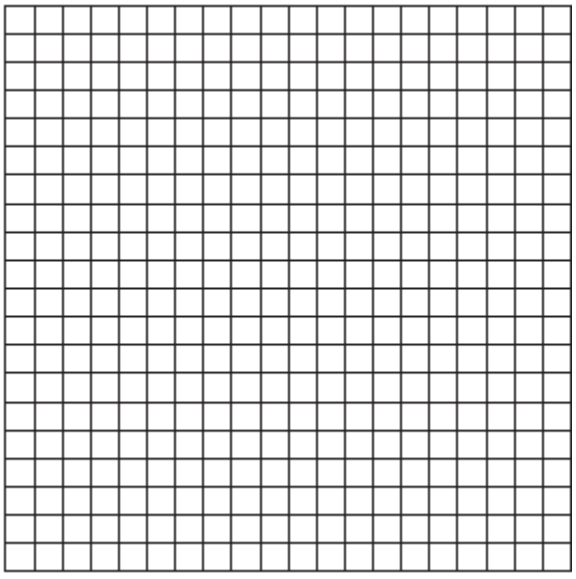
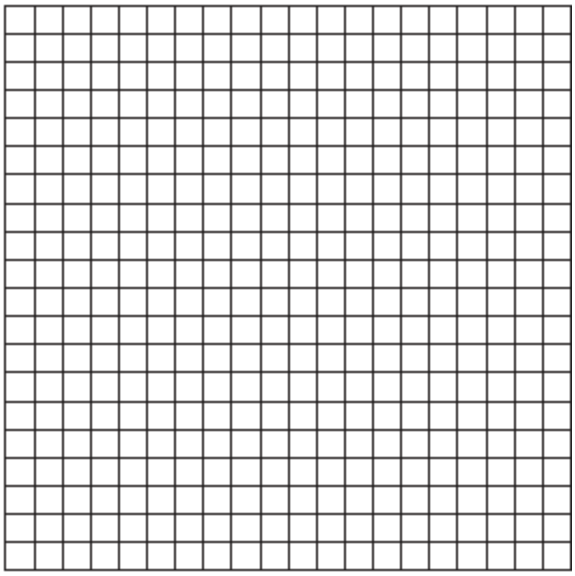


CONCLUSION: _____

The vertices of quadrilateral *JKLM* have coordinates $J(-3,1)$, $K(1,-5)$, $L(7,-2)$, and $M(3,4)$. Prove that *JKLM* is a parallelogram. Prove that *JKLM* is *not* a rhombus. [The use of the set of axes below is optional.]



Quadrilateral *ABCD* has vertices $A(2,3)$, $B(7,10)$, $C(9,4)$, and $D(4,-3)$. Prove that *ABCD* is a parallelogram but *not* a rhombus. [The use of the grid is optional.]



Quadrilateral *MATH* has coordinates $M(1,1)$, $A(-2,5)$, $T(3,5)$, and $H(6,1)$. Prove that quadrilateral *MATH* is a rhombus and prove that it is *not* a square. [The use of the grid is optional.]