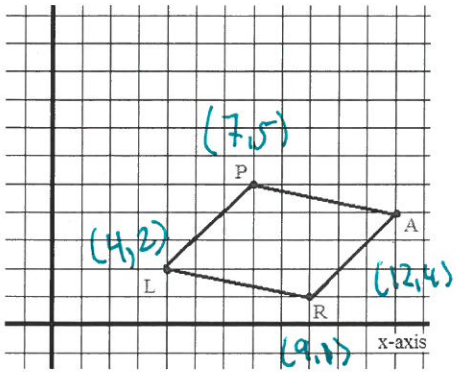
Geometry S2 Name: _____ Block: _____

Proving Quadrilaterals

Follow the directions with each specific question.

1.

Prove or disprove the quadrilateral below is a parallelogram.



$PL = \frac{3}{3}$

$AR = \frac{3}{3}$

$PA = \frac{1}{-5}$

$LR = \frac{1}{-5}$

$PL = \sqrt{(7-4)^2+(5-2)^2}$
$= \sqrt{9+9}$
$= \sqrt{18}$

$AR = \sqrt{(12-9)^2+(4-1)^2}$
$= \sqrt{9+9}$
$= \sqrt{18}$

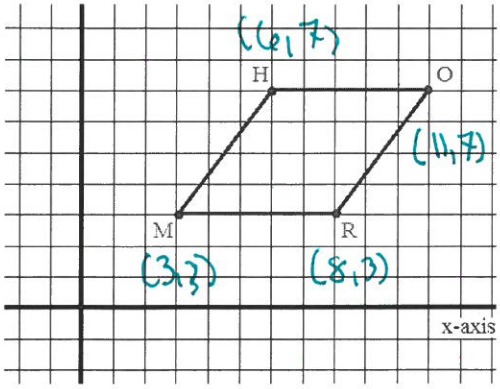
$PA = \sqrt{(12-7)^2+(4-5)^2}$
$= \sqrt{25+1}$
$= \sqrt{26}$

$LR = \sqrt{(9-4)^2+(1-2)^2}$
$= \sqrt{25+1}$
$= \sqrt{26}$

- opposite parallel sides = yes
- opposite congruent sides = yes

2.

Prove or disprove the quadrilateral is a rhombus.



$\overline{HO} = 5$

$\overline{MR} = 5$

$\overline{OR} = \sqrt{(11-8)^2 + (7-3)^2}$
$= \sqrt{9+16}$
$= \sqrt{25}$
$= 5$

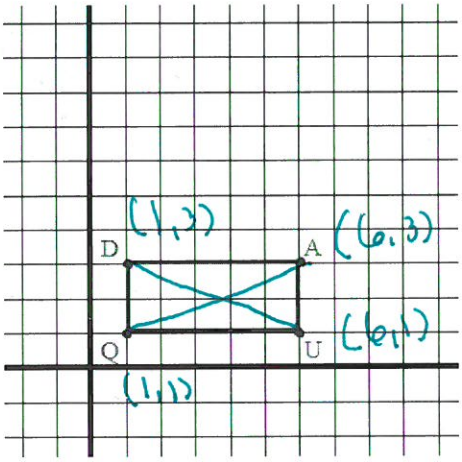
$\overline{HM} = \sqrt{(6-3)^2 + (7-3)^2}$
$= \sqrt{9+16}$
$= \sqrt{25}$
$= 5$

- 4 congruent sides = yes

Geometry S2 Name: _____ Block: _____

3.

Prove or disprove the quadrilateral is a square.



$AD = 5$

$AU = 2$

$UQ = 5$

$DQ = 2$

$AQ = \sqrt{(6-1)^2+(3-1)^2}$

$= \sqrt{25+4}$

$= \sqrt{29}$

$DU = \sqrt{(6-1)^2+(1-3)^2}$

$= \sqrt{25+4}$

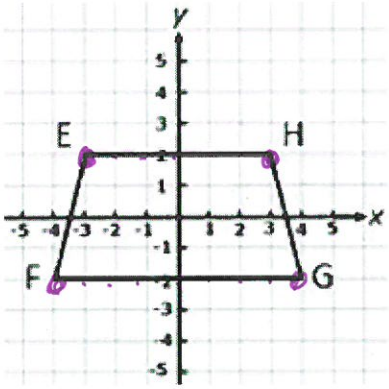
$= \sqrt{29}$

- 4 congruent sides = no
- 2 congruent diagnols ⇒ yes

not a square

4.

Prove or disprove the quadrilateral is a trapezoid.



- 1 pair of parallel sides

$\overline{EH} \Rightarrow \frac{0}{6} = 0$

$\overline{FG} = \frac{0}{8} = 0$

Slopes are the same

yes, it is a trapezoid