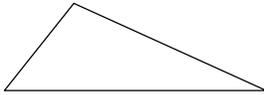
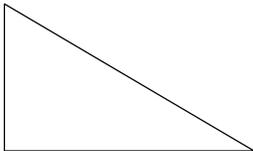
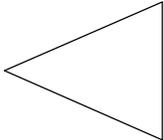
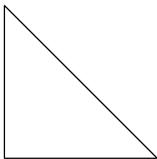
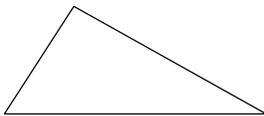
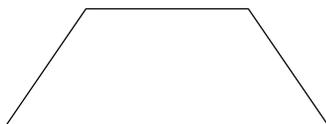


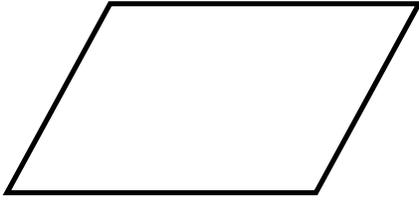
Name _____ Per _____

LO: I can prove statements by first proving that triangles are congruent and then using the corresponding parts to prove other relationships, including relationships in quadrilaterals.

 DO NOW On the back of this packet (1) **Triangles and Quadrilaterals**

transparencies and dry erase markers

Use a compass and straightedge OR tracing paper/plastic to make quadrilateralsA **parallelogram** is a 4 sided shape with opposite sides parallel. Why do we get a **parallelogram** when we rotate any triangle around the midpoint of one of its sides?A **rectangle** is a 4 sided shape with 4 right angles. Why do we get a **rectangle** when we rotate a right triangle around the midpoint of its hypotenuse?A **rhombus** is a 4 sided shape with 4 equal sides. Why do we get a **parallelogram** if we rotate an isosceles triangle around the midpoint of its base?A **square** is a 4 sided shape with 4 equal sides and 4 right angles. Why do we get a **square** when we rotate an isosceles right triangle around the midpoint of its hypotenuse?A **kite** is a 4 sided shape with 2 pairs of adjacent sides that are congruent. Why do we get a **kite** when we reflect any triangle across its longest side?A **trapezoid** is a 4 sided shape with at least one pair of parallel opposite sides. Why can't the **trapezoid** at left be made by rotating or reflecting a triangle?

(2) **Quadrilateral Proofs** (a) Use the definition of a parallelogram to prove that opposite sides are congruent.

 (b) Use the definition of a parallelogram and the information you proved in #4a to prove that the diagonals bisect each other.

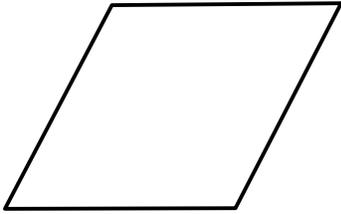
(3) **Quadrilateral Proofs**

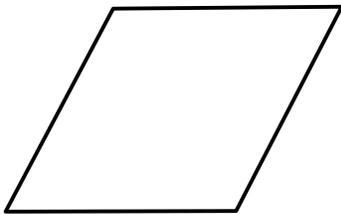
(a) Use the definition of a rectangle to prove that it is a parallelogram.



(b) Use the definition of a rectangle and anything you have proven so far to prove that the diagonals are congruent.

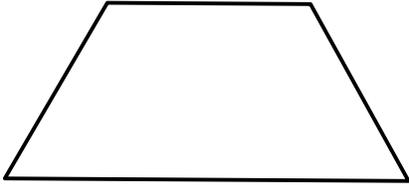


(4) **Quadrilateral Proofs** (a) Use the definition of a rhombus to prove that it is a parallelogram.

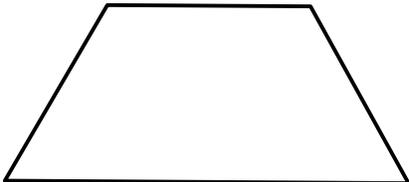
 (b) Use the definition of a rhombus to prove that the diagonals are perpendicular.

(7) **Quadrilateral Proofs**

(a) Use the definition of isosceles trapezoid to prove that its base angles are congruent. (Use 2 altitudes to make a rectangle and 2 right triangles, show the triangles are congruent, use congruent parts.)



(b) Use the information from #7 to prove that the diagonals are congruent. (Use congruent parts and overlapping triangles.)

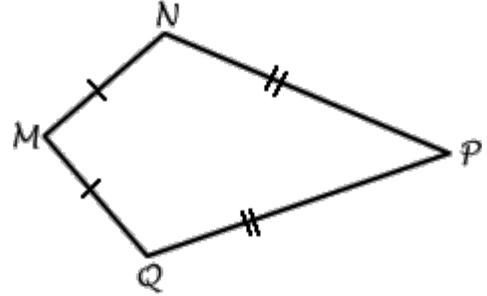


(6) **Exit Ticket**

ON THE LAST PAGE

 (7) **Homework**

(1) Use the definition of a kite (a quadrilateral with 2 pairs of consecutive = sides) to prove that diagonal \overline{MP} bisects $\angle NPQ$.



(2) First, draw it, then make a conclusion

| I know that . . . | because . . . |
|--------------------------------------|---------------|
| \overline{MN} bisects $\angle AND$ | It is given |
| | |

(7) Homework
cont.

(3) First, draw it, then make a conclusion

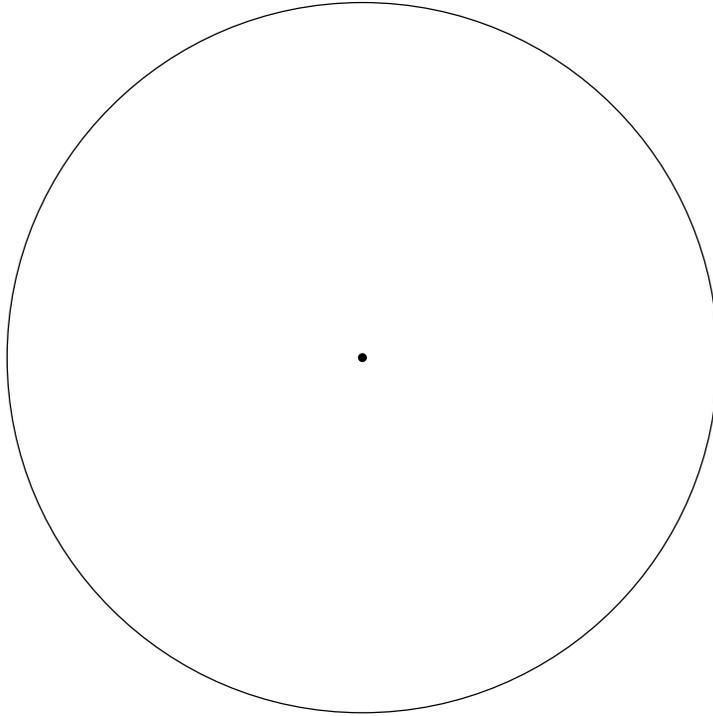
| I know that ... | because ... |
|---|-------------|
| $\angle BOY$ and $\angle TOY$ are both 90° | It is given |
| | |
| | |

(4) Of the boxes 1, 2, 3, and 4, at least one of them is correct and at least one is incorrect. For the incorrect boxes, explain what is incorrect.

| | |
|---|--|
| <p>1</p> <p>$\vec{RU} \parallel \vec{ST}$</p> | <p>2</p> <p>$\vec{MI} \parallel \vec{DL} \parallel \vec{ES}$</p> |
| <p>3</p> | <p>4</p> |

(7) **Homework**
cont.

(5) Construct equilateral triangle QRS inscribed in the circle below. (Hint: It might help to construct a regular hexagon first.)



(6) In the diagram for problem number 7, label the center of the circle C and connect C to each vertex of the triangle.

(a) What kind of triangle is triangle QCR? _____

(b) What is the measure of angle QCR? _____

(c) What is the measure of angle CQR? _____

Exit Ticket **Name** _____ **Date** _____ **Per** _____

4.7R

(1) The LO (Learning Outcomes) are written below your name on the front of this packet. Demonstrate your achievement of these outcomes by doing the following:

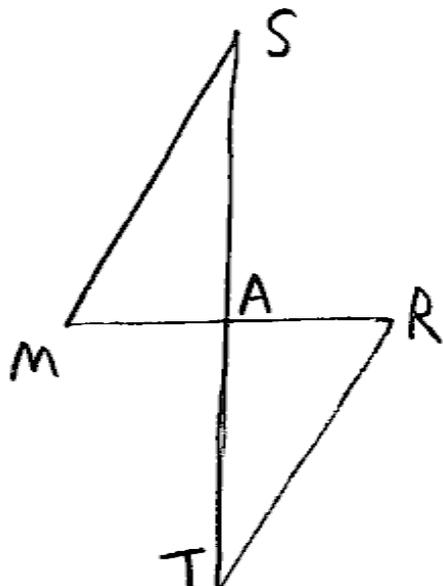
No exit ticket. Proof Progress only

(1) PROOF PROGRESS D:

Write a proof for #1 or #2.

Attach this to the top of your "Proof Progress" packet with a paper clip.

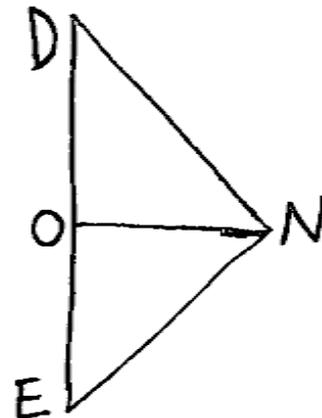
①



Given: $\overline{ST} \perp \overline{MR}$
 \overline{ST} and \overline{MR} bisect
 each other

Prove: $\triangle MAS \cong \triangle RAT$

②



Given: \overline{NO} bisects \overline{DE}
 $\angle NOD \cong \angle NOE$

Prove: $\triangle DON \cong \triangle EON$