

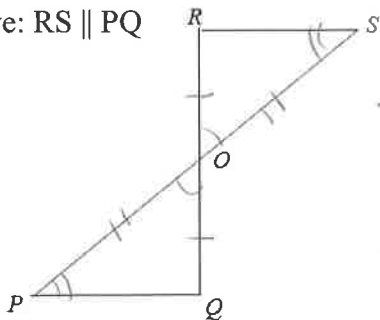
Geometry Fall Semester Review: Chapter 3

Name: _____

Show all work for full credit. PS3 – Parallel & Perpendicular Lines

1. Given: O is the midpoint of \overline{PS} and of \overline{RQ}

Prove: $RS \parallel PQ$



Statements	Reasons
O IS MIDDPOINT OF \overline{PS} + \overline{RQ}	GIVEN
$\overline{RO} \cong \overline{QO}$ + $\overline{PO} \cong \overline{SO}$	DEF. OF A MIDDPOINT
$\angle POQ \cong \angle SOR$	V.A.T.
$\triangle POQ \cong \triangle SOR$	SAS
$\angle P \cong \angle S$	CPCTC
$\overline{RS} \parallel \overline{PQ}$	ALTERNATE INTERIOR ANGLES CONVERSE THEOREM.

Use the following diagram to answer questions 16 – 18. Given: $a \parallel b$.

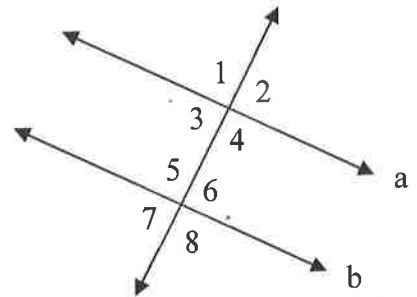
2. State the reason that defends the statement

If $m\angle 3 = 95^\circ$, then $m\angle 6 = 95^\circ$. **ALTERNATE INTERIOR ANGLES THEOREM (\cong)**

3. State the reason that defends the statement

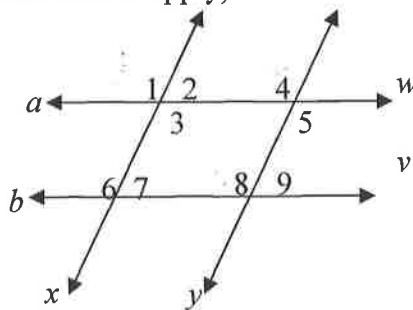
If $m\angle 4 = 70^\circ$, then $m\angle 6 = 110^\circ$. **CONSECUTIVE INTERIOR ANGLES THEOREM (SUPPLEMENTARY)**

4. If $m\angle 1 = 135^\circ$, then the $m\angle 8 = 135^\circ$. **ALTERNATE EXTERIOR \angle TH.**

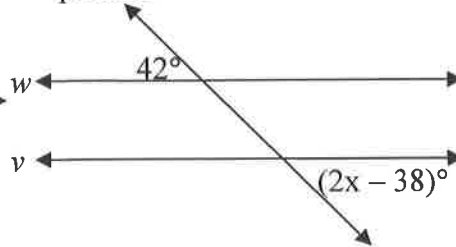


5. Which of the statements must be true if $a \parallel b$ and $x \parallel y$? (choose all that apply)

- I. $m\angle 3 + m\angle 7 = 180^\circ$
- II. $m\angle 1 + m\angle 4 = 180^\circ$
- III. $m\angle 6 = m\angle 8$
- IV. $m\angle 1 = m\angle 8$



6. What value of x would make lines w and v parallel?
 $2x - 38 = 42$
 $2x = 80$
 $x = 40$



7. Find the equation of the line parallel to the line $2x + 5y = -20$ that passes through the point $(-20, 10)$

$$2x + 5y = -20$$

$$5y = -2x - 20$$

$$y = -\frac{2}{5}x - 4$$

$$m = -\frac{2}{5}$$

$$y = mx + b$$

$$10 = -\frac{2}{5}(-20) + b$$

$$10 = 8 + b$$

$$2 = b$$

$$y = -\frac{2}{5}x + 2$$

8. Write the equation of a line perpendicular to

$$y = -\frac{2}{3}x + 4$$

$m = -\frac{2}{3}$ $m_{\perp} = \frac{3}{2}$

and passes through the point $(5, 1)$.

$$1 = \frac{3}{2}(5) + b$$

$$1 = \frac{15}{2} + b$$

$$1 - 7.5 = b$$

$$-6.5 = b$$

$$y = \frac{3}{2}x - 6\frac{1}{2}$$

$$y = \frac{3}{2}x - \frac{13}{2}$$

9. Write the equation of a line a) passing through $(-2, 5)$ and has a slope of 3

$$5 = 3(-2) + b$$

$$5 = -6 + b$$

$$11 = b$$

$$y = 3x + 11$$

b) perpendicular to $3x - 6y = 24$ through $(4, -1)$

$$-6y = -3x + 24$$

$$-1 = -2(4) + b$$

$$-1 = -8 + b$$

$$7 = b$$



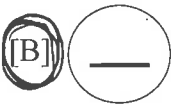





$$y = -2x + 7$$

Geometry Fall Semester Review: Chapter 4


Name: _____

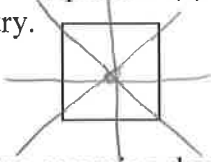
Show all work for full credit. PS4 – Transformations

1. Which of the following transformations represent an isometry? *RIGID MOTION*

[A]   [B]   [C]   [D]  

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2. Use the square to (a) draw all lines of symmetry  and b) give all angles of rotational symmetry.



90°, 180°, 270°

3. During ceramics class, Susan painted plates for her mother. Which design exhibits rotational symmetry?

[A]  [B]  [C]  [D] 

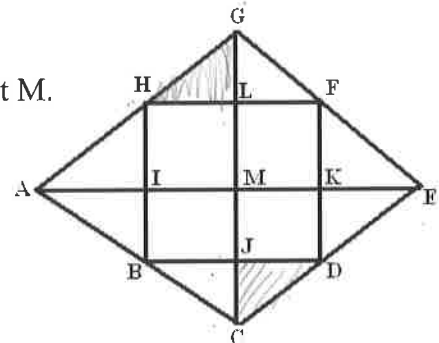
4. Name the transformation that maps the unshaded car onto the shaded car.



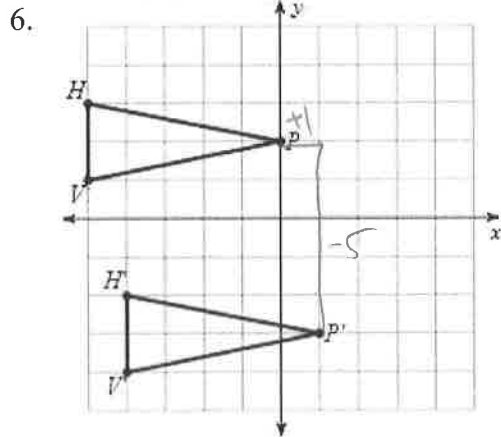
TRANSLATION (MOVE)

5. Name the triangle that is a 180° clockwise rotation of $\triangle HLG$ about M.

$\triangle DJC$

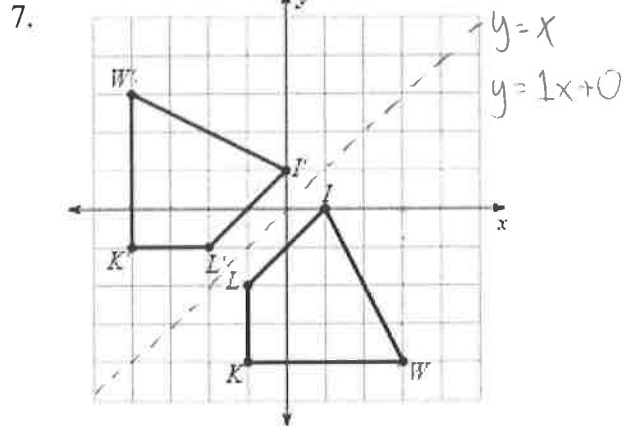


Use each graph to answer the follow-up questions.



- a) Identify the transformation:
 [A] translation: 1 unit right and 5 units down
 [B] rotation: 90° counter-clockwise about (0, 0)
 [C] reflection across the x-axis
 [D] None of these
- b) Give the transformation in coordinate notation.

$(x, y) \rightarrow (x+1, y-5)$
 $\langle 1, -5 \rangle$ *(VECTOR NOTATION)*



- a) Identify the transformation:
 [A] translation: 1 unit left and 1 units up
 [B] rotation: 90° clockwise about (0, 0)
 [C] reflection across the line $y = x$
 [D] None of these
- b) Give the transformation in coordinate notation.

$(x, y) \rightarrow (y, x)$

8. Find the coordinates of the vertices of the image of $QRST$ for each transformation.

$Q(1, 5), R(3, -1), S(0, 0), T(-2, 3)$

a. reflection across the y -axis

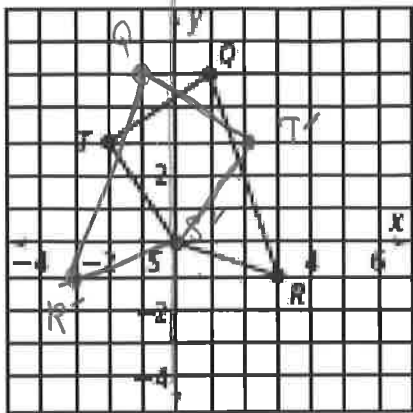
b. rotation of 90° clockwise about the origin

$Q'(-1, 5)$

$R'(-3, -1)$

$S'(0, 0)$

$T'(2, 3)$

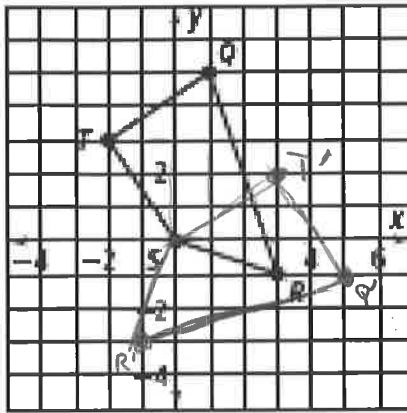


$Q'(5, -1)$

$R'(-1, -3)$

$S'(0, 0)$

$T'(3, 2)$



c. translation $(x, y) \rightarrow (x+2, y-5)$

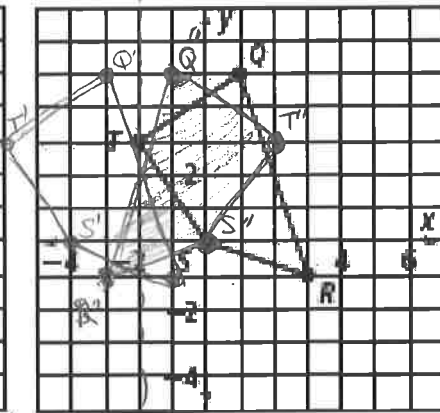
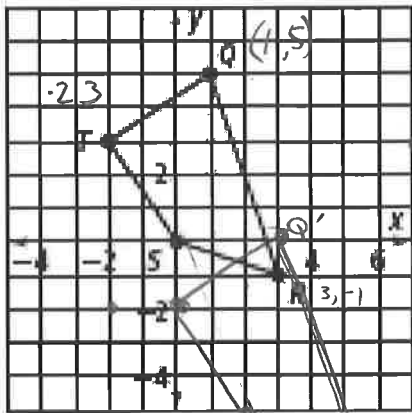
d. translation $(x, y) \rightarrow (x-4, y)$ followed by a reflection across the line $y = -2$

$Q'(3, 0)$

$R'(5, -6)$

$S'(2, -5)$

$T'(0, -2)$



$Q'(-1, 5)$

$R'(-3, -1)$

$S'(0, 0)$

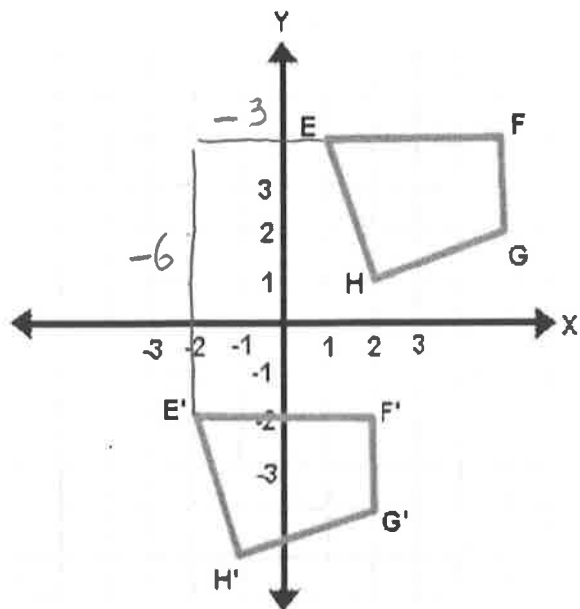
$T'(2, 3)$

9. Write the transformation rule for the transformation of quadrilateral $EFGH$ onto $E'F'G'H'$ in coordinate notation AND vector component forms.

E is at $(1, 4)$ and E' is at $(-2, -2)$

$$(x, y) \rightarrow (x-3, y-6)$$

$$\langle -3, -6 \rangle$$



Geometry Fall Semester Review: Chapter 5
 Show all work for full credit. PS5 – Congruent Triangles

Name: _____

1. A triangle with one obtuse angle and two congruent sides is called OBTUSE ISOSCELES.

2. Find the measure of $\angle BCD$.

$$16x+20 = 7x+6+77$$

$$16x+20 = 7x+83$$

$$-7x \quad -20 \quad -7x \quad -20$$

$$\frac{9x}{9} = \frac{63}{9}$$

$$x = 7$$

$$16(7)+20$$

$$112+20$$

$$m\angle BCD = 132^\circ$$

3. Find the measure of $\angle 1$.

$$90 + 49 = 139$$

$$180 - 139 = 41$$

$$41 + 41 = 82$$

$$180 - 82 = 98$$

$$98 - 58 = 40$$

$m\angle 1 = 81^\circ$

4. In the diagram below $\triangle EFG \cong \triangle HIJ$. What is the measure of $\angle H$?

$$\frac{41}{57} \quad \frac{180}{98}$$

$$\frac{98}{82}$$

$$m\angle E = 82^\circ$$

5. Given $\angle M \cong \angle B$ and $\angle K \cong \angle C$, find the value of x .

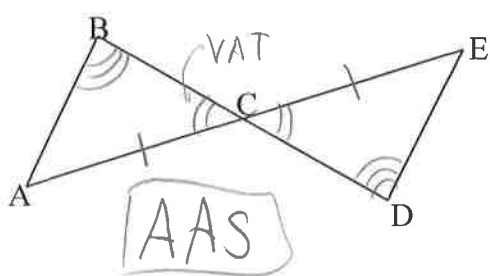
$$3x + 2x + 9 + 31 = 180$$

$$5x + 40 = 180$$

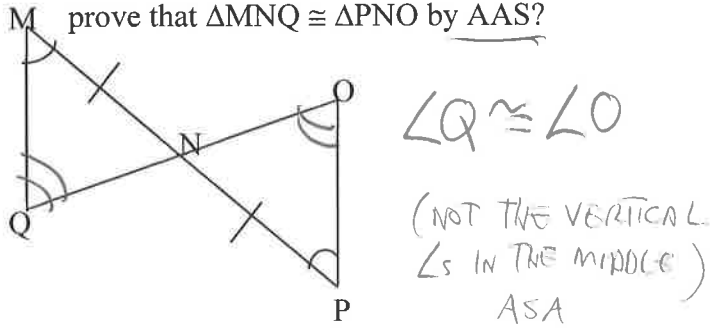
$$5x = 140$$

$$x = 28$$

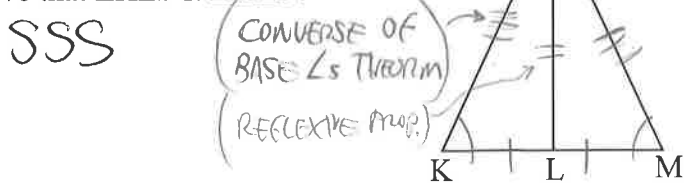
6. Which postulate or theorem can be used to prove that $\triangle ABC \cong \triangle EDC$ given C is the midpoint of AE and $\angle B \cong \angle D$?



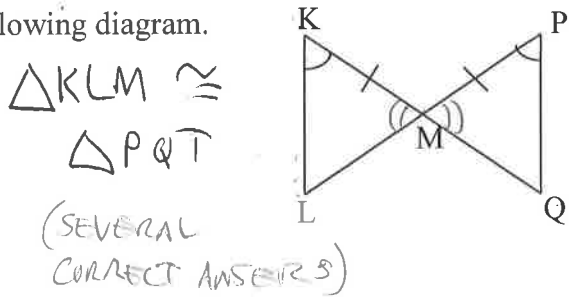
7. What is the third congruence needed to prove that $\triangle MNQ \cong \triangle PNO$ by AAS?



8. Given that $\angle K \cong \angle M$ and \overline{PL} bisects \overline{KM} , which postulate or theorem can be used to prove that $\triangle KLP \cong \triangle MLP$?



9. Write a triangle congruence statement for the following diagram.



10. Find the values of x and y in each figure.

a)

$$\begin{array}{r} 68 \\ 68 \\ \hline 136 \\ 180 \\ -136 \\ \hline 44 \end{array}$$

$y = 68^\circ$
 $x = 44^\circ$

b)

$$\begin{array}{r} 180 \\ -50 \\ \hline 130 \div 2 = 65 \end{array}$$

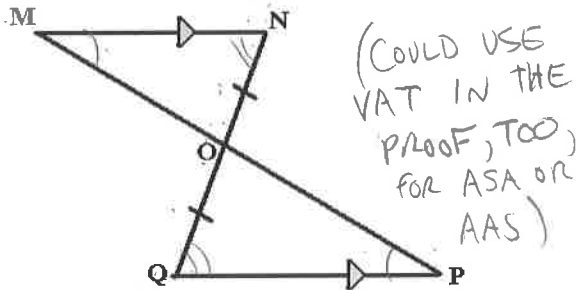
$x = 65^\circ$
 $y = 65^\circ$

c)

$$\begin{array}{r} 3x + 5 = 2x + 8 \\ -2x \quad -5 \quad -2x \quad -5 \\ \hline x = 3 \end{array}$$

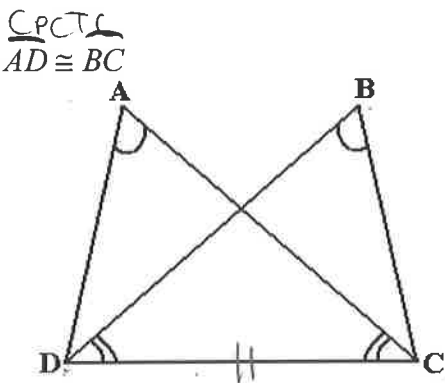
Use the information given in each diagram to complete each proof.

11. Prove: $\triangle MNO \cong \triangle PQO$



Statement	Justification
$\overline{MN} \parallel \overline{PQ}$	GIVEN
$\overline{NO} \cong \overline{QO}$	
$\angle M \cong \angle P$ AND $\angle N \cong \angle Q$	ALTERNATE INTERIOR ANGLES THEOREM
$\triangle MNO \cong \triangle PQO$	AAS

12. Prove: $\overline{AD} \cong \overline{BC}$



Statement	Justification
$\angle A \cong \angle B$ $\angle BDC \cong \angle ACD$	GIVEN
$\overline{DC} \cong \overline{DC}$	REFLEXIVE PROPERTY
$\triangle BDC \cong \triangle ACD$	AAS
$\overline{AD} \cong \overline{BC}$	CPCCTC