

ALT 5 – Geometry Semester 2 Final Review

Transformations

- Translations
- Reflections
- Rotations

Symmetry/Rotational Symmetry

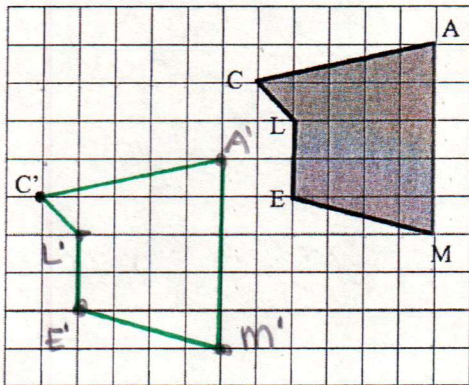
Constructions

- Congruence/Classify
- Distance/Perimeter

1. Translate each figure as indicated.

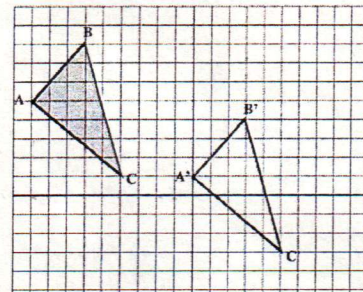
a. Translate CAMEL → C'A'M'E'L'  
Then write the rule.

Rule:  $(x-6, y-3)$



b. Write the rule that translates ABC → A'B'C'

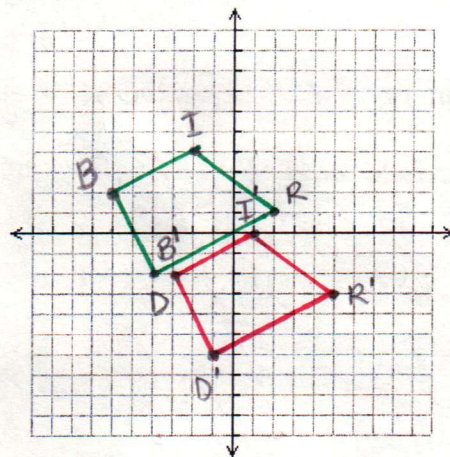
Rule:  $(x+9, y-4)$



c. Plot the points:

- B (-6, 2)
- I (-2, 4)
- R (2, 1)
- D (-4, -2)

Create and label B'I'R'D'  
using the rule:  $(x + 3, y - 4)$

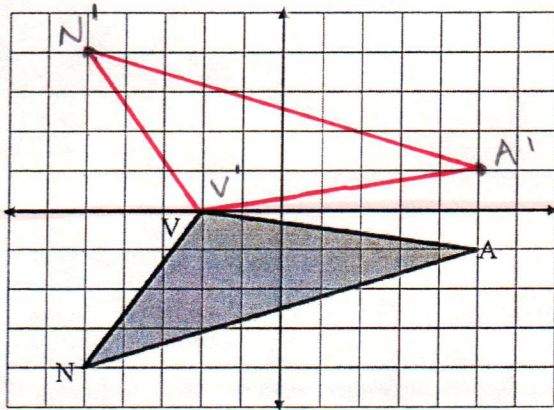


d. How do you know that a figure has been translated and not reflected or rotated?

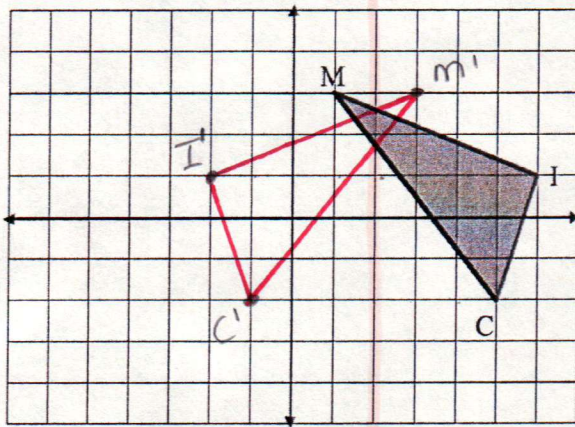
It has only moved, not flipped or turned.  
It is still oriented the same way.

2. Reflect each figure as indicated. Draw the line of reflection.

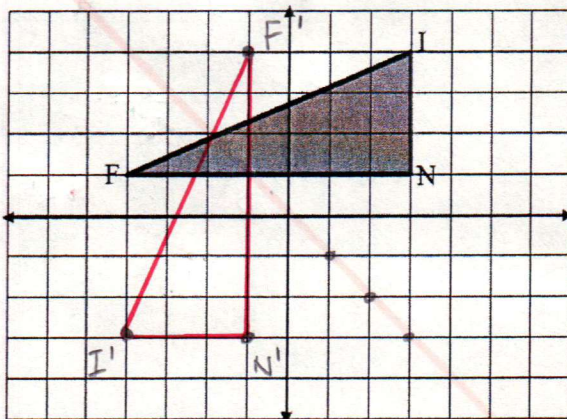
a. Reflect VAN over the  $x$ -axis. Label  $V'A'N'$



b. Reflect  $MIC$  over the line  $x = 2$ . Label  $M'I'C'$

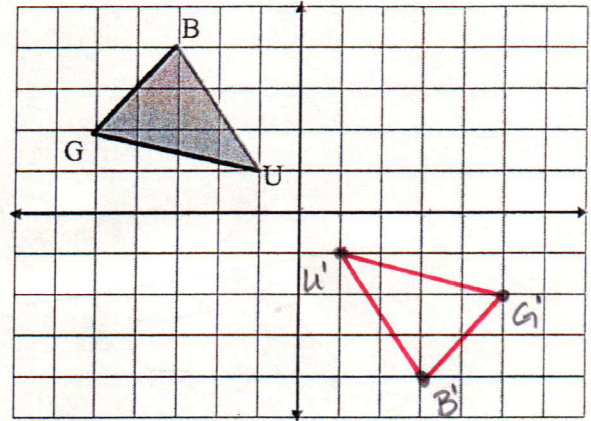


c. Reflect  $FIN$  over the line  $y = -x$ . Label  $F'I'N'$

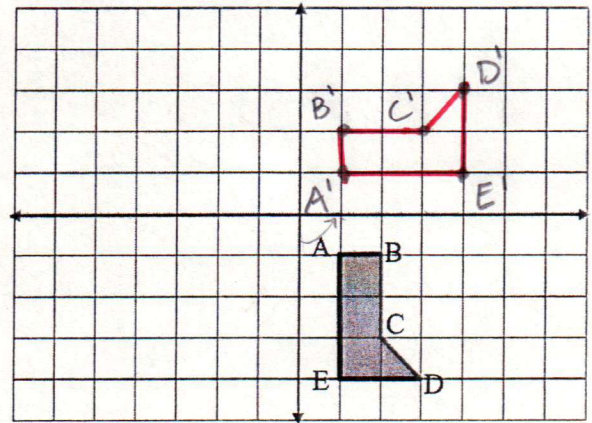


3. Rotate each figure as indicated.

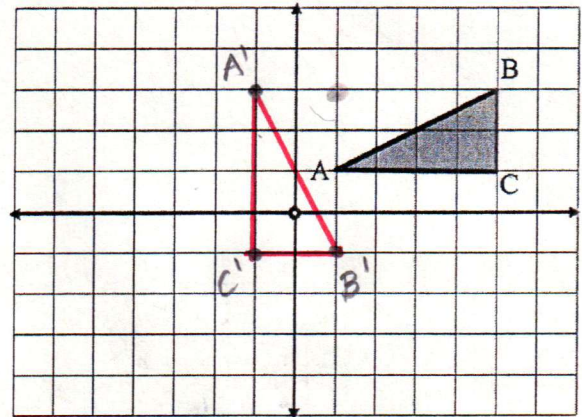
a. Rotate BUG 180°. Label B'U'G' around the origin



b. Rotate ABCDE 90° counter-clockwise around the origin. Label A'B'C'D'E'

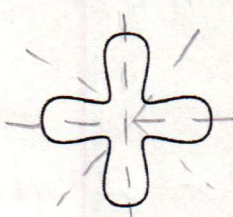


c. Rotate ABC 90° clockwise around the point (1, 3). Label A'B'C'



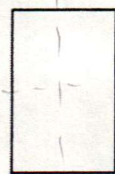
4. For each figure:

- Determine the total number of lines of symmetry.
- Determine the angle of rotational symmetry.



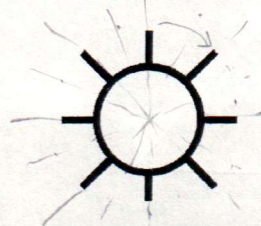
a. 4

b.  $360 \div 4 = 90^\circ$



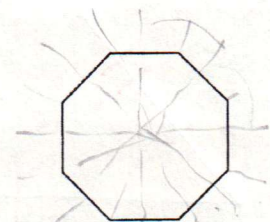
a. 2

b.  $360 \div 2 = 180^\circ$



a. 8

b.  $360 \div 8 = 45^\circ$

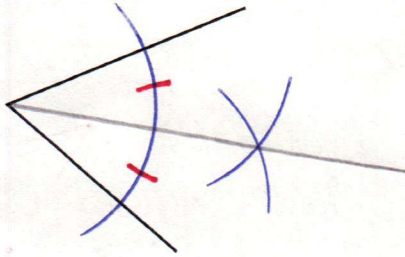


a. 8

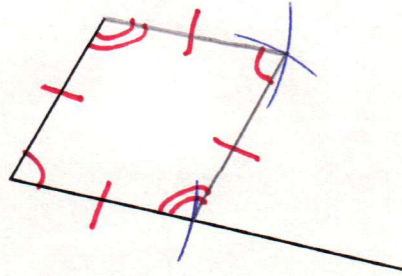
b.  $360 \div 8 = 45^\circ$

5. Construct each figure as indicated.

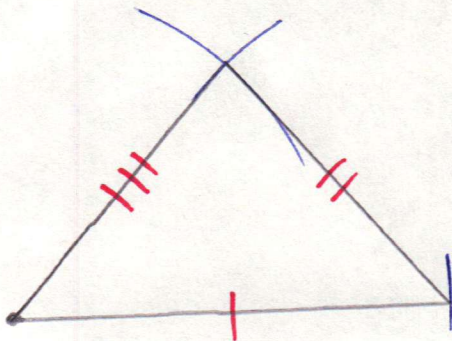
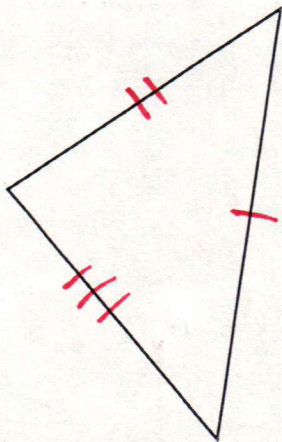
a. Bisect the given angle.



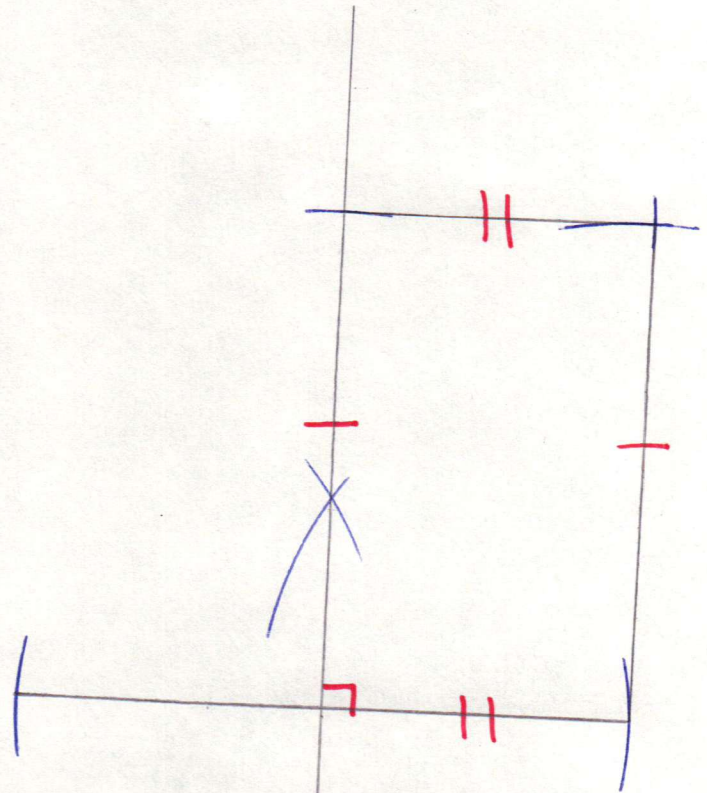
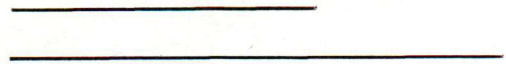
b. Construct a rhombus from the given angle.



c. Copy the triangle

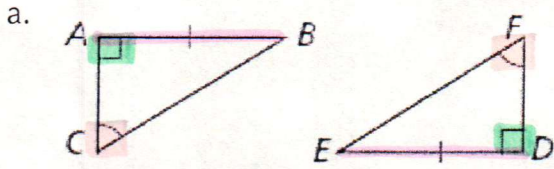


d. Make a rectangle from the given lengths.



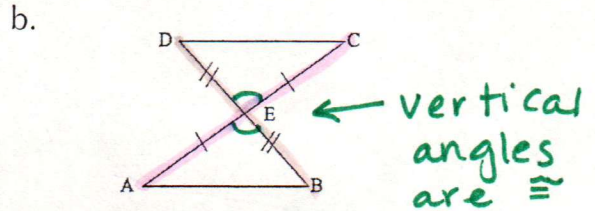
← perpendicular bisector

6. Give a basic proof for each pair of triangles.



- $\overline{AB} \cong \overline{DE}$  side
- $\angle A \cong \angle D$  angle
- $\angle C \cong \angle F$  angle

$\triangle ABC \cong \triangle DEF$  by SAA



- $\overline{CE} \cong \overline{AE}$  side
  - \*  $\angle CED \cong \angle AEB$  angle
  - $\overline{DE} \cong \overline{BE}$  side
- $\triangle CDE \cong \triangle ABE$  by SAS

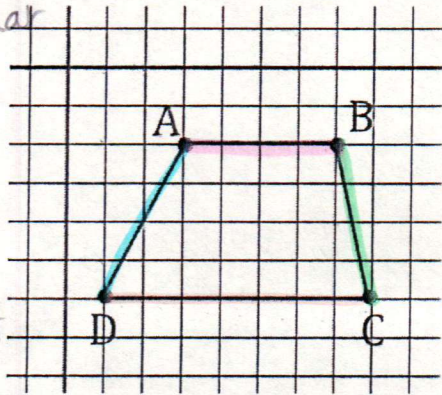
7. Classify each quadrilateral and give its perimeter.

- a.  $A(3, -2) B(7, -2) C(8, -6) D(1, -6)$       b.  $J(2, -2) K(9, -4) L(8, -7) M(1, -5)$

no perpendicular sides

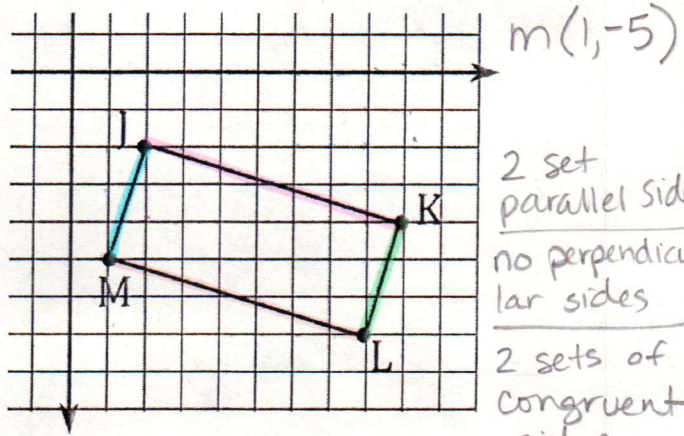
1 set parallel sides

no congruent sides



Perimeter: 19.59

Shape: Trapezoid



2 set parallel sides  
no perpendicular sides

2 sets of congruent sides

Perimeter: 20.88

Shape: Parallelogram

$\overline{AB}$   $m=0$   $\sqrt{(3-7)^2 + (-2-2)^2}$   
 $= 4$

$\overline{BC}$   $m=-4$   $\sqrt{(7-8)^2 + (-2-6)^2}$   
 $= 4.12$

$\overline{CD}$   $m=0$   $\sqrt{(8-1)^2 + (-6-6)^2}$   
 $= 7$

$\overline{DA}$   $m=2$   $\sqrt{(1-3)^2 + (-6-2)^2}$   
 $= 4.47$

$\overline{JK}$   $m=-\frac{2}{7}$   $\sqrt{(2-9)^2 + (-2-4)^2}$   
 $= 7.28$

$\overline{KL}$   $m=3$   $\sqrt{(9-8)^2 + (-4-7)^2}$   
 $= 3.16$

$\overline{LM}$   $m=-\frac{2}{7}$   $\sqrt{(8-1)^2 + (-7-5)^2}$   
 $= 7.28$

$\overline{MJ}$   $m=3$   $\sqrt{(1-2)^2 + (-5-2)^2}$   
 $= 3.16$