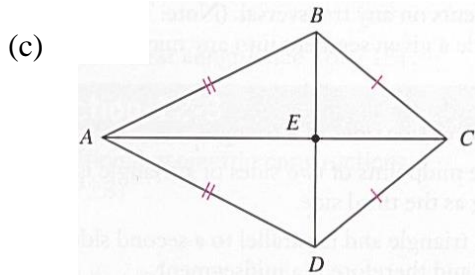
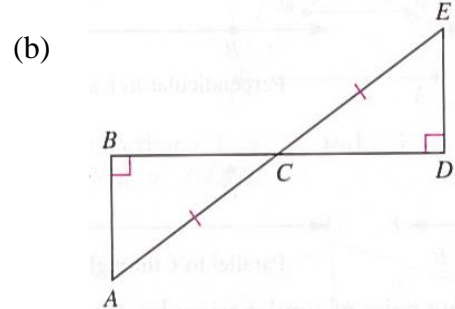
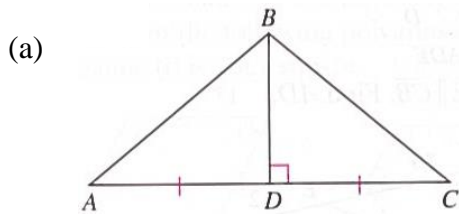


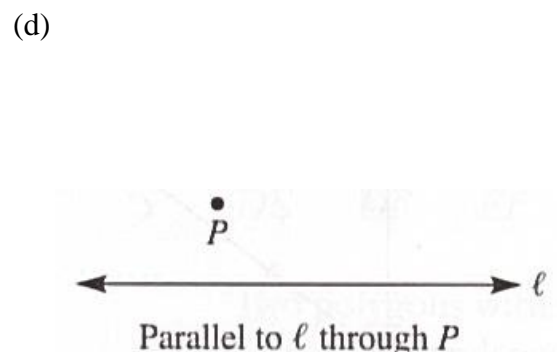
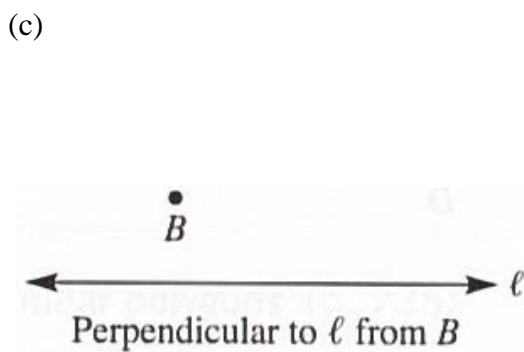
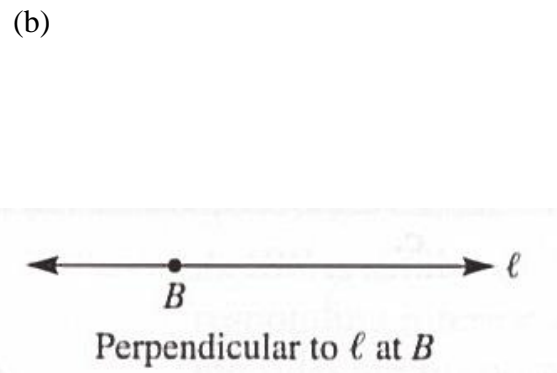
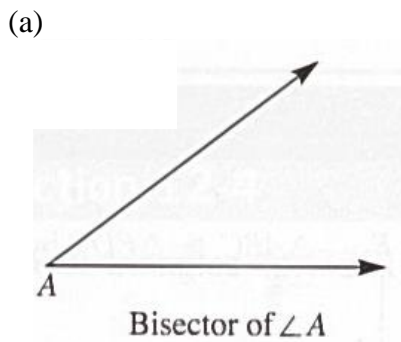
Congruence and Similarity with Constructions & Transformations Quiz

Name _____

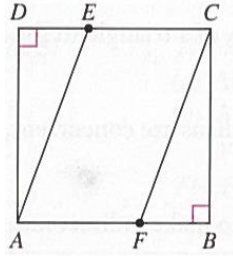
1. Each of the following figures contains at least one pair of congruent triangles. Identify them, and explain why they are congruent.



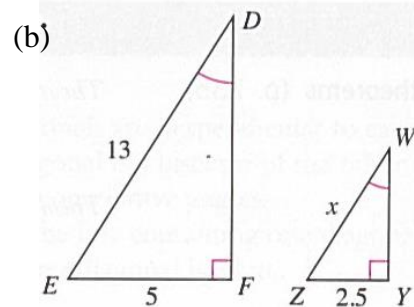
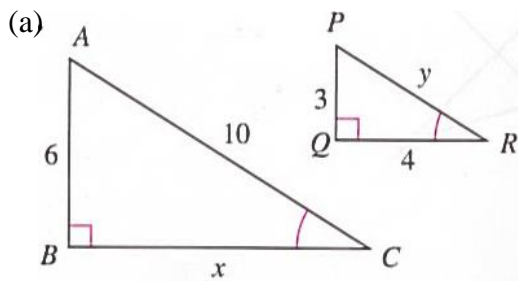
2. Construct each of the following using a compass and a straightedge.



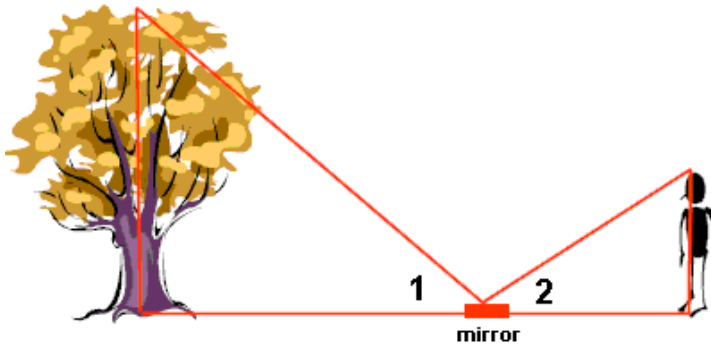
3. In the following figure, ABCD is a square and $\overline{DE} \cong \overline{BF}$. What kind of figure is AECF? Justify your answer.



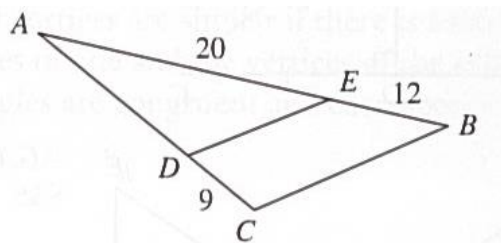
4. For each of the following pairs of similar triangles, find the missing measures.



5. A person lays a mirror on flat ground and views the top of the tree in the mirror. If $\angle 1 \cong \angle 2$, the distance from the person to the mirror is 10 ft, and the distance from the mirror to the base of the tree is 45 ft, and the person is 5.5 ft tall (from their feet to eye level), find the height of the tree.



6. In the figure below, $\overline{DE} \parallel \overline{CB}$. Find AD.

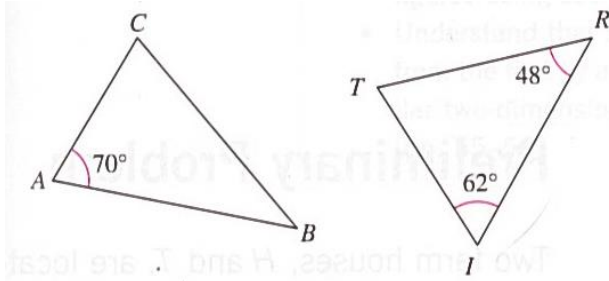


7. Given $\triangle ABC \cong \triangle TRI$, find the measures of

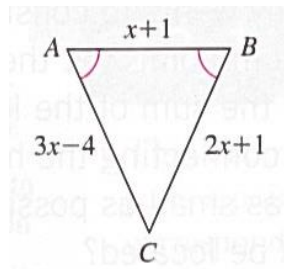
(a) $\angle T$

(b) $\angle C$

(c) $\angle B$

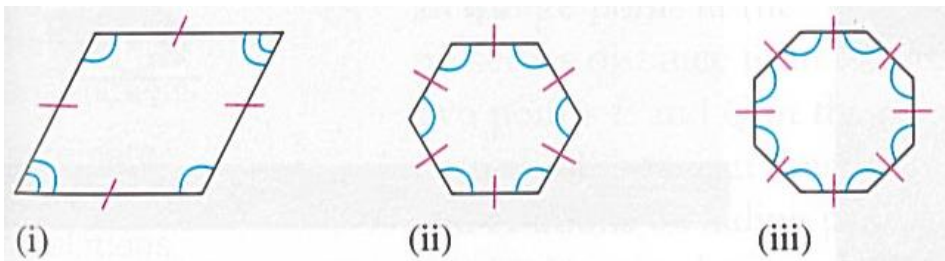


8. Given $\triangle ABC$, find the lengths of the three sides. $AB = \underline{\hspace{2cm}}$, $BC = \underline{\hspace{2cm}}$, $AC = \underline{\hspace{2cm}}$

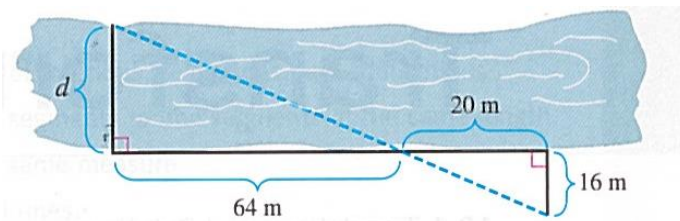


9. If a person 2 m tall casts a shadow 1 m long when a building has a 6 m shadow. How tall is the building?

10. Which of the following polygons can be inscribed in a circle? Assume (i) is not a square.



11. Find the distance across the river sketched.

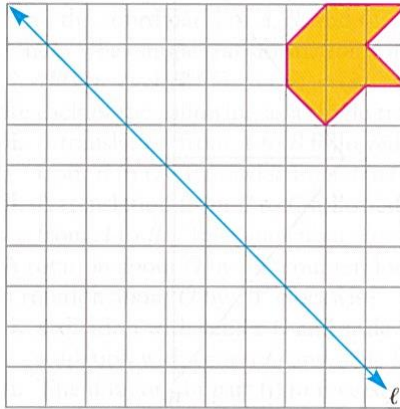


12. Is the following statement always true? If not, what condition can be added to make the statement true?

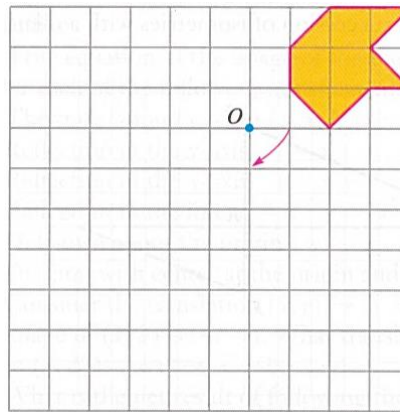
A quadrilateral whose diagonals are congruent and perpendicular is a square.

13. Complete each of the following motions.

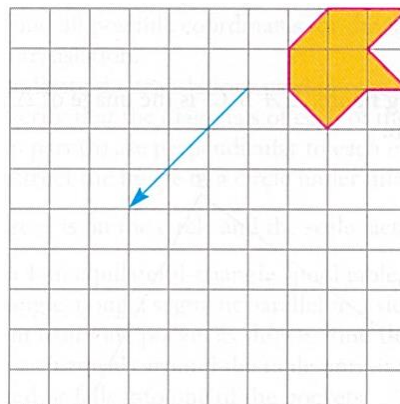
- (a) A reflection in l



- (b) A rotation in O through the given arc

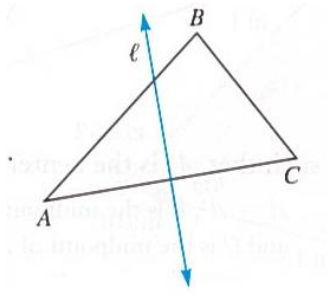


- (c) A translation, as pictured

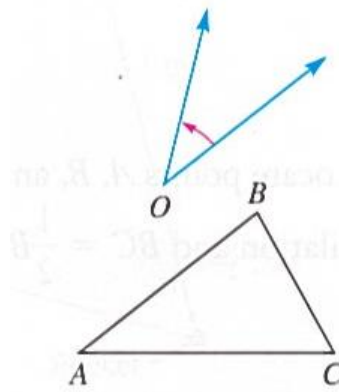


14. For each of the following figures, construct the image of $\triangle ABC$.

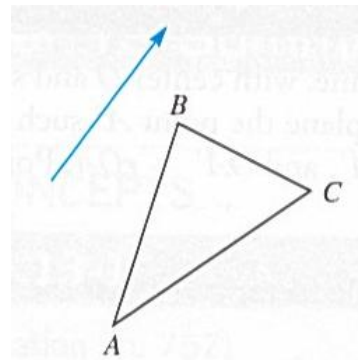
(a) Through a reflection in l



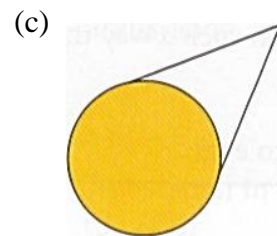
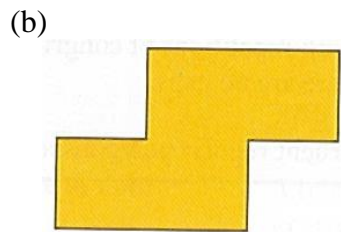
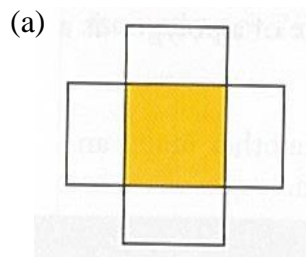
(b) Through the given rotation in O



(c) By the translation (with arrow pictured)



15. Determine any reflections or rotations that take the following figures to themselves.



20. Find the equation of the image of the line $y = -2x + 4$ under each of the following transformations.

(a) Complete the following chart for this line.

x	y

(b) For the translation indicated by $(x, y) \rightarrow (x - 2, y + 3)$, where do these two points move?

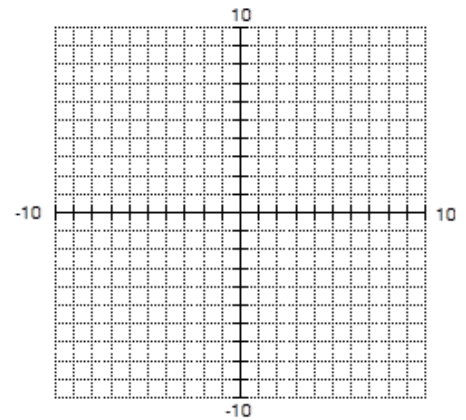
x	y

Does a translation change the slope of the line? _____

What is the equation of this translated line? _____

(c) Find the reflection of the original line over the x-axis or y-axis. _____

Equation: _____



(d) Draw all 4 lines on the coordinate graph, writing its equation on each line.

19. Two adjacent vertices of a rhombus are $A(-2, 0)$ and $B(2, 3)$.

(a) How long is segment AB ? Show your use of the Pythagorean Theorem.

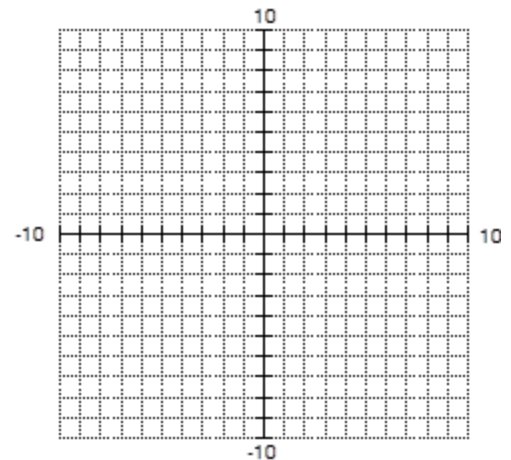
(b) If the rhombus's next vertex is $C(c, 0)$, find possible coordinates of C . (_____, 0)

(c) Find a possible coordinate of the fourth vertex D using opposite sides parallel.

D (_____, _____)

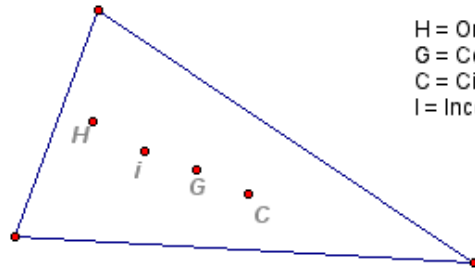
(d) Draw a rhombus $ABCD$ on the coordinate grid.

(e) Draw its two diagonals. Are they perpendicular? Explain your reasoning using slopes.



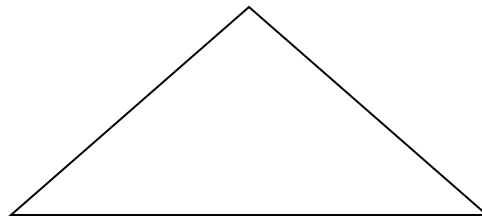
22. Match each of the following “centers” of triangles with the corresponding construction.

- (a) angle bisectors _____
- (b) medians _____
- (c) perpendicular bisectors _____
- (d) altitudes _____

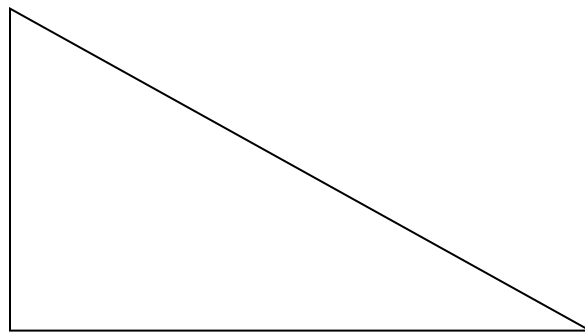


H = Orthocenter
 G = Centroid
 C = Circumcenter
 I = Incenter

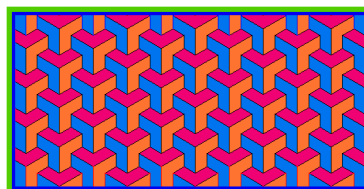
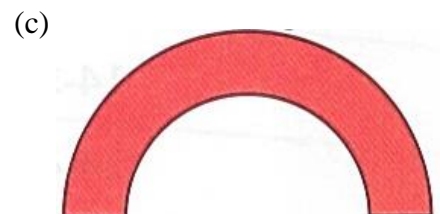
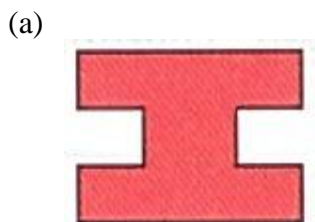
23. In the figure below, construct the incenter of this triangle. Then draw the incircle.



24. In the figure below, construct the circumcenter of this triangle. Then draw the circumcircle.



25. Determine whether the following shapes tessellate the plane.



Do your best! Live and learn!