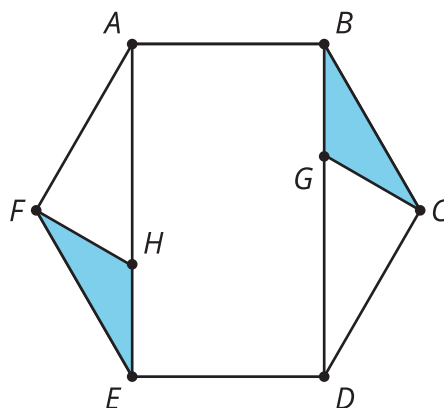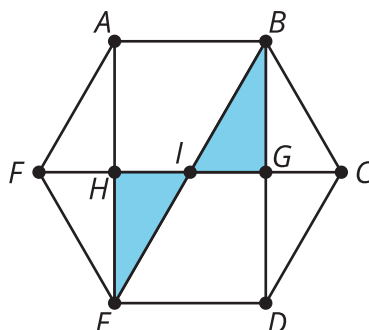# Lesson 22 Practice Problems

1. This design began from the construction of a regular hexagon. Name 2 pairs of congruent figures.

2. This design began from the construction of a regular hexagon. Describe a rigid motion that will take the figure to itself.


3. Noah starts with triangle ABC and makes 2 new triangles by translating B to A and by translating B to C. Noah thinks that triangle DCA is congruent to triangle BAC. Do you agree with Noah? Explain your reasoning.
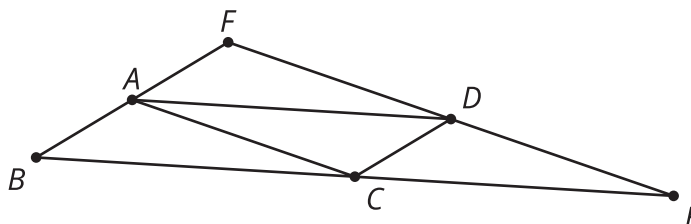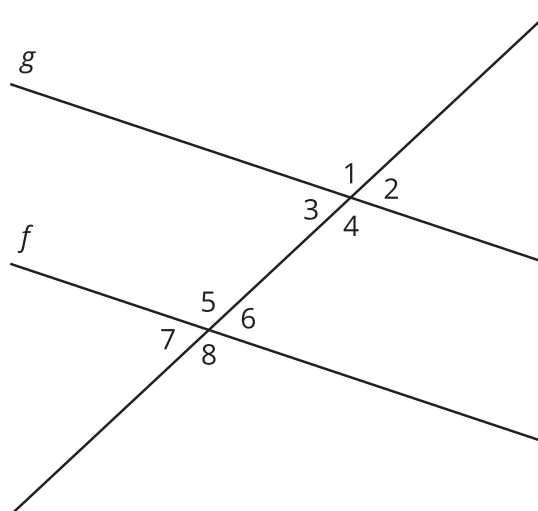

(From Unit 1, Lesson 21.)

4. In the image, triangle ABC is congruent to triangle BAD and triangle CEA. What are the measures of the 3 angles in triangle CEA? Show or explain your reasoning.
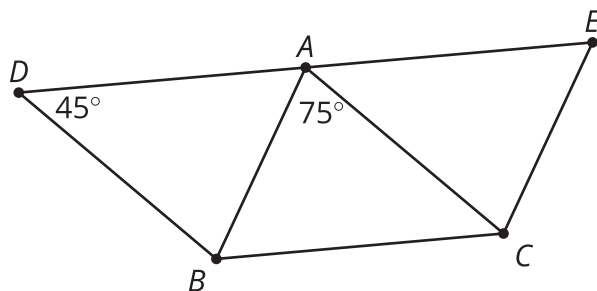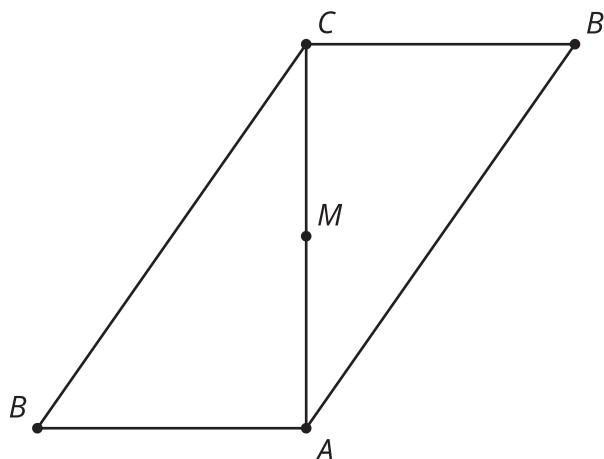

(From Unit 1, Lesson 21.)

5. In the figure shown, angle 3 is congrent to angle 6. Select **all** statements that *must* be true.

    A. Lines f and g are parallel.

    B. Angle 2 is congruent to angle 6

    C. Angle 2 and angle 5 are supplementary

    D. Angle 1 is congruent to angle 7

    E. Angle 4 is congruent to angle 6

(From Unit 1, Lesson 20.)
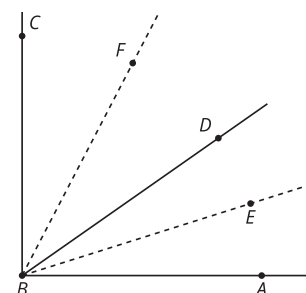
6. In this diagram, point M is the midpoint of segment AC and B' is the image of B by a rotation of 180° around M.

   a. Explain why rotating 180° using center M takes A to C.

   b. Explain why angles BAC and $B'CA$ have the same measure.

(From Unit 1, Lesson 20.)

7. Lines AB and BC are perpendicular. The dashed rays bisect angles ABD and CBD.

   Select **all** statements that *must* be true:

   A. Angle CBF is congruent to angle DBF

   B. Angle CBE is obtuse

   C. Angle ABC is congruent to angle EBF

   D. Angle DBC is congruent to angle EBF

   E. Angle EBF is 45 degrees

(From Unit 1, Lesson 19.)
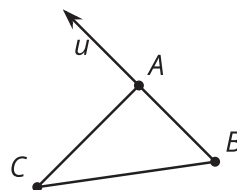
8. Lines AD and EC meet at point B.

Give an example of a rotation using an angle greater than 0 degrees and less than 360 degrees, that takes both lines to themselves. Explain why your rotation works.
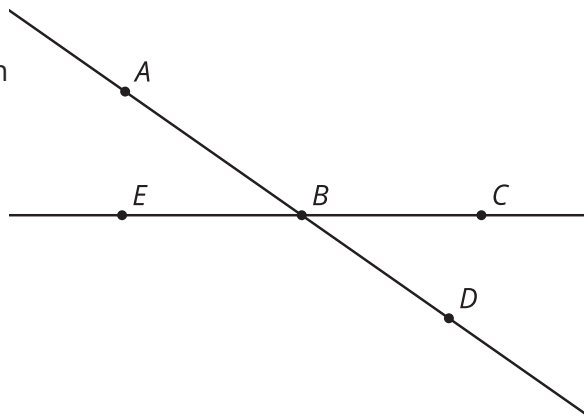
(From Unit 1, Lesson 19.)

9. Draw the image of triangle ABC after this sequence of rigid transformations.

    a. Reflect across line segment AB.

    b. Translate by directed line segment u.

(From Unit 1, Lesson 18.)

10.   a. Draw the image of figure $CAST$ after a clockwise rotation around point T using angle CAS and then a translation by directed line segment AS.

    b. Describe another sequence of transformations that will result in the same image.

(From Unit 1, Lesson 18.)