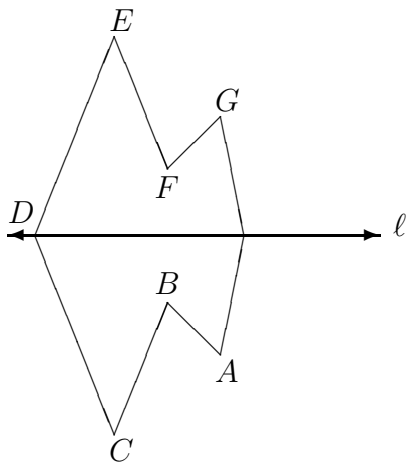
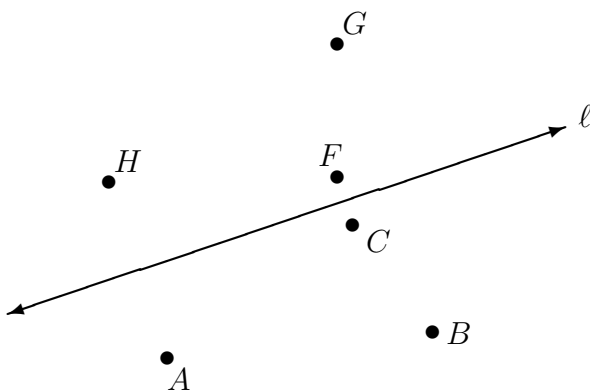


1. Use the diagram below to fill in each blank. Use correct notation, and note the slight verbal variations in the directions:

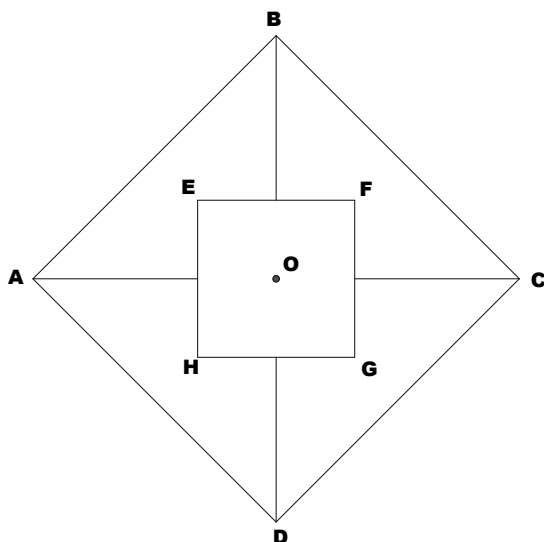


- (a) The image of \overline{AB} under reflection in ℓ is (?) .
 (b) The reflection image of D in ℓ is (?) .
 (c) The reflection of \overline{GF} in ℓ is (?) .
 (d) The image of $ABCDEFG$ under reflection through ℓ is (?) .
2. Use the diagram below to fill in each blank, using correct notation.



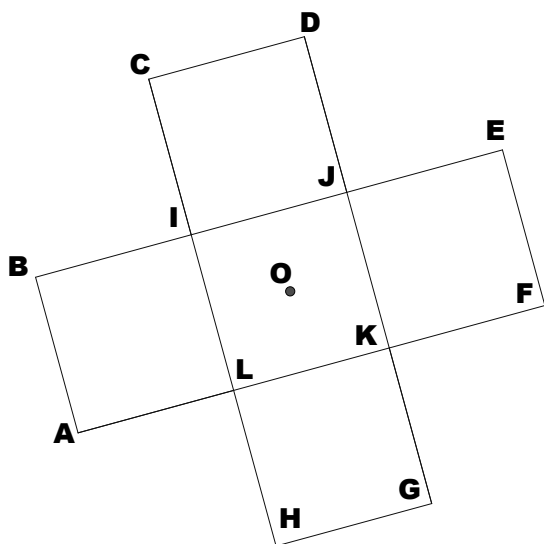
- (a) The reflection image of A in ℓ is (?) .
 (b) The image under reflection through ℓ of G is (?) .
 (c) The image of \overrightarrow{FG} under reflection in ℓ is (?) .
 (d) The reflection image through ℓ of $\triangle ABC$ is (?) .
3. Consider the diagram that follows, in which $EFGH$ and $ABCD$ are both squares. Using correct notation, find the image upon 90° clockwise rotation about O of each of

the following.



- (a) A
- (b) D
- (c) H
- (d) $\triangle FCA$
- (e) \overline{BC}
- (f) \overline{BE}
- (g) \overrightarrow{CG}
- (h) \overleftrightarrow{FC}

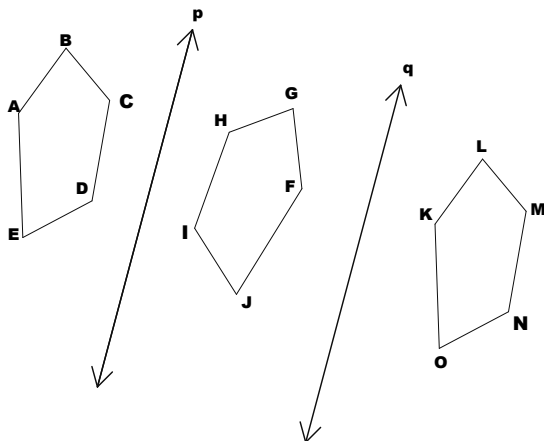
4. The figure below is made up of five congruent squares. Find the 90° counterclockwise rotational image around O of the following.



- (a) A
- (b) $ABIL$
- (c) $ABEF$

- (d) $CDKL$
- (e) $IJKL$
- (f) \overline{AE}

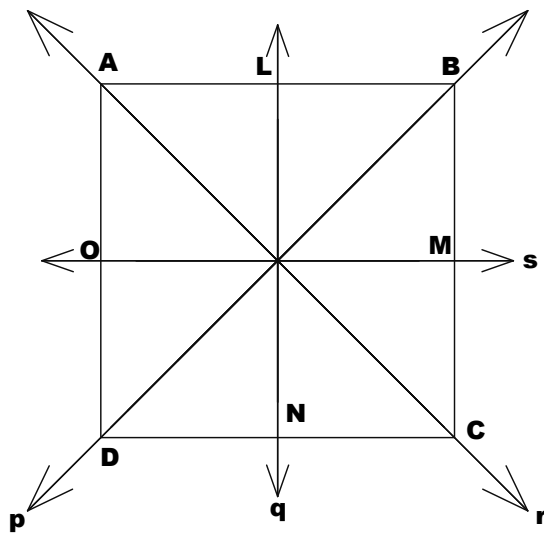
5. Consider the figure below.



The product (that is, the final result) of reflection in line p followed by reflection in q maps ...

- (a) A to (?) .
- (b) E to (?) .
- (c) (?) to N .
- (d) (?) to L .
- (e) (?) to \overline{OM} .

6. Consider this diagram:



Reflection in line q followed by reflection in line s sends ...

- (a) A to (?) .

- (b) L to (?) .
- (c) N to (?) .
- (d) \overline{OD} to (?) .
- (e) (?) to B .

7. Refer to the diagram above and consider reflection in line p followed by reflection in line Q .

- (a) The (final) image of A is (?) .
- (b) The image of B is (?) .
- (c) The image of D is (?) .
- (d) The image of L is (?) .
- (e) The image of C is (?) .
- (f) The image of M is (?) .
- (g) The image of \overline{CD} is (?) .
- (h) The image of \overline{BD} is (?) .

8. Again, refer to the same diagram. Let's call the unmarked point where all the lines of reflection have met point X .

- (a) The image of A after 90° clockwise rotation around X followed by reflection through line r is (?) .
- (b) The image of D after reflection in line p followed by 90° counterclockwise rotation around X is (?) .
- (c) The image of \overline{CM} after reflection in line p followed by 90° counterclockwise rotation around X is (?) .

9. Consider the points $A = (3, -5)$ and $B = (0, 2)$. Give the coordinates of their images A' and B' after each of the following rigid motions. (Tell which answer is A' and which is B' in each instance.)

- (a) translation 5 units left and 2 units up
- (b) translation 3 units right
- (c) rotation 180° around the origin
- (d) rotation 90° clockwise around the origin
- (e) rotation 90° clockwise around the point $(3, 2)$
- (f) reflection through the y -axis
- (g) reflection through the x -axis
- (h) reflection through the line $y = x$ (it runs through the origin with a slope of 1)