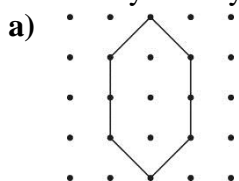


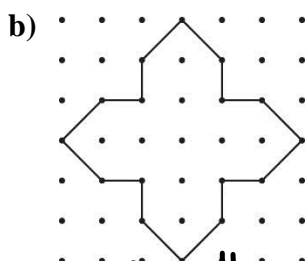
# 7.6 Reflections and Line Symmetry – Worksheet

1. Which polygons have rotational symmetry? State the order of rotation and the angle of rotation symmetry for each.



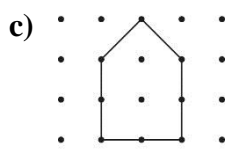
Order of rotation  
is 2

Angle R.S. =  $\frac{360}{2} = 180^\circ$

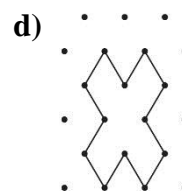


O.R. = 4

ARS =  $\frac{360}{4} = 90^\circ$



No order of  
rotation



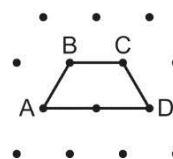
O.R. = 2

ARS =  $\frac{360}{2} = 180^\circ$

2. Draw the rotation image for each rotation of quadrilateral ABCD. Rotate quadrilateral ABCD clockwise about vertex D by:

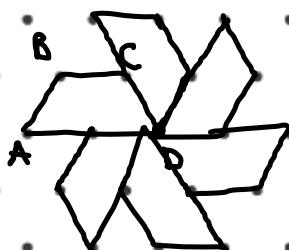
- a)  $60^\circ$       b)  $120^\circ$       c)  $180^\circ$   
d)  $240^\circ$       e)  $300^\circ$

Consider the larger shape formed by quadrilateral ABCD and these rotation images. Describe the symmetry of this shape.



Order of rotational  
Symmetry is 6.

Angle R.S. =  $\frac{360}{6} = 60^\circ$



3. What is the order of rotation and the angle of rotation symmetry, if any, for:

a) an equilateral triangle

$$O.R = 3$$

$$A.R.S = \frac{360}{3} = 120^\circ$$

b) a regular polygon with 9 sides

all equal  
Sides

$$O.R = 9$$

$$A.R.S = \frac{360}{9} = 40^\circ$$

c) a kite that is not a rhombus



4 equal sides

No rotational  
Symmetry

d) the plus sign +

$$O.R \text{ is } 4$$

$$A.R.S = \frac{360}{4} = 90^\circ$$

4. Plot the kite FISH on a coordinate grid.

The vertices of FISH are F(3, 4), I(5, 2), S(3, 1), H(1, 2).

Rotate the kite FISH:

a)  $90^\circ$  clockwise about vertex F

b)  $180^\circ$  about vertex F

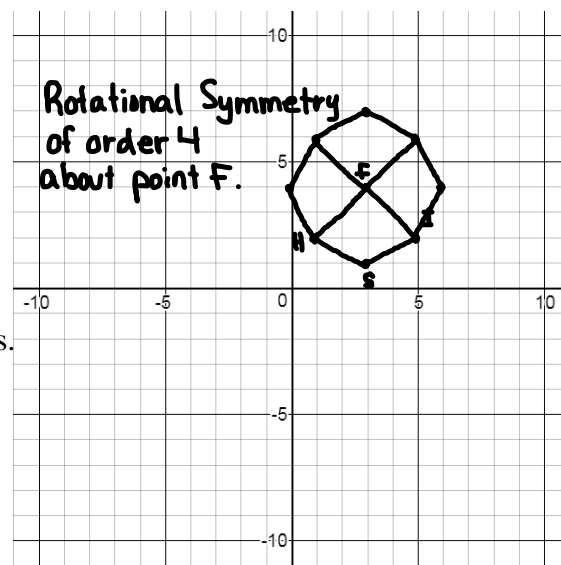
c)  $270^\circ$  clockwise about vertex F

Draw each rotation image.

Look at the shape formed by the kite and its rotation images.

Write the coordinates of this shape.

Describe any rotational symmetry in this shape.



5. Draw the rotation image for each transformation of quadrilateral ABCD.

a)  $180^\circ$  about vertex B

b)  $90^\circ$  clockwise about vertex A

c)  $90^\circ$  counterclockwise about point E

