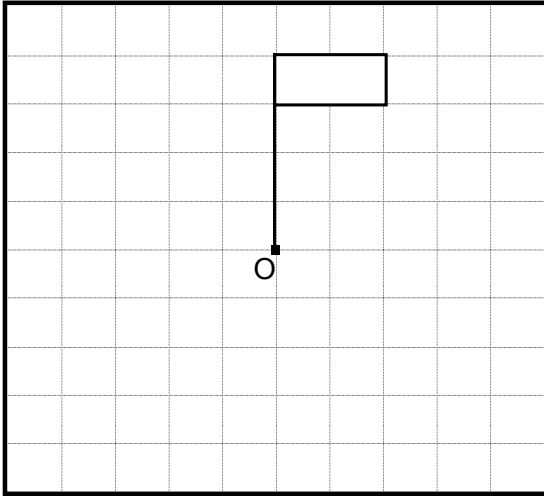


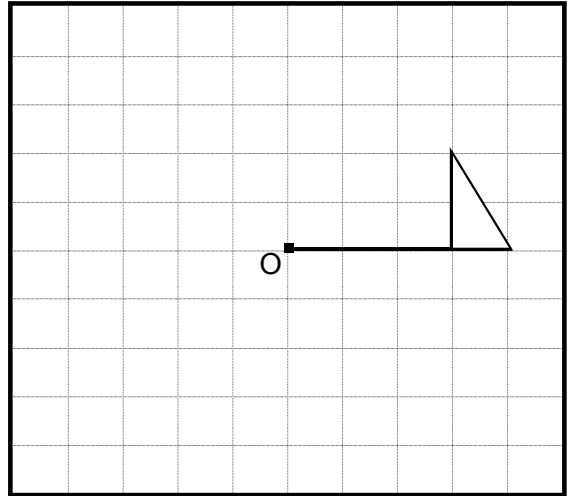
# Rotation

1. Copy and complete each shape so that it has half-turn symmetry about O.

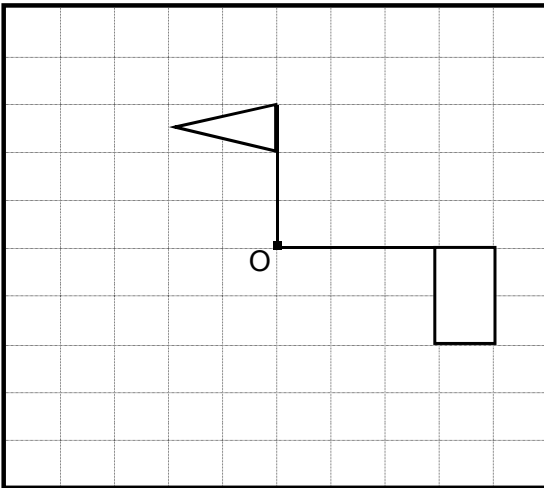
(a)



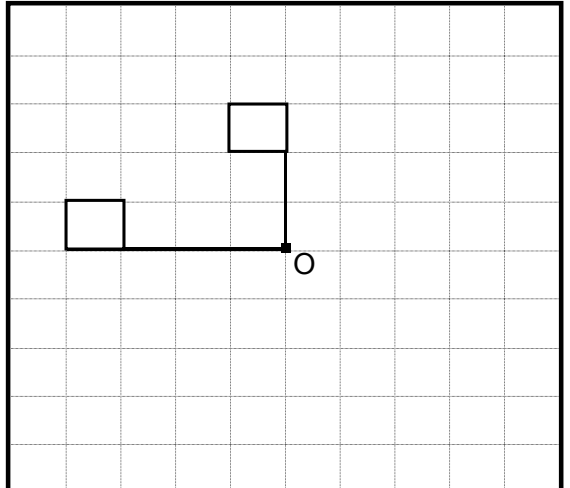
(b)



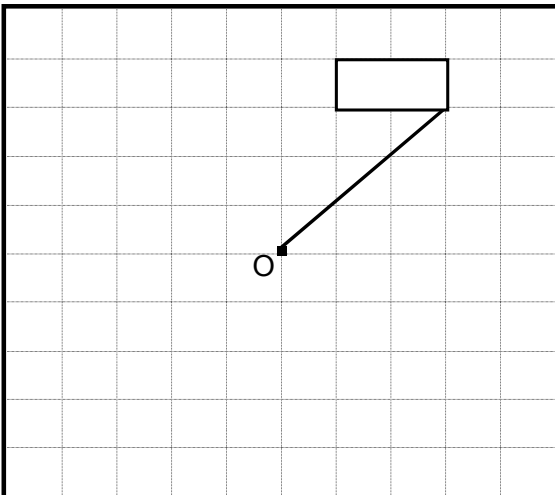
(c)



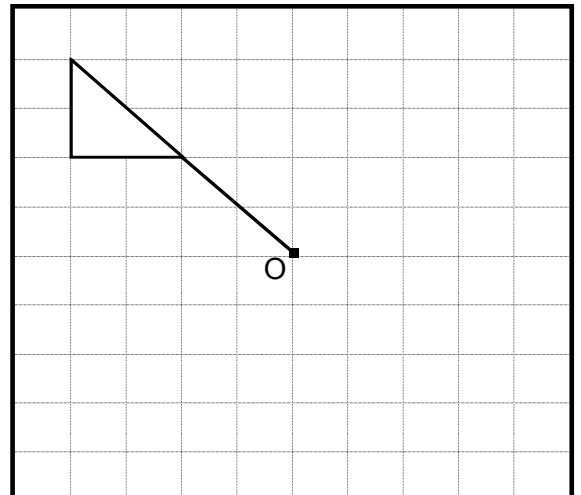
(d)



(e)

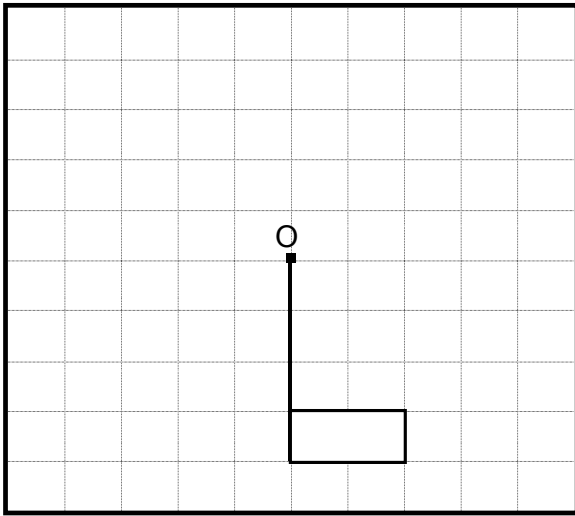


(f)

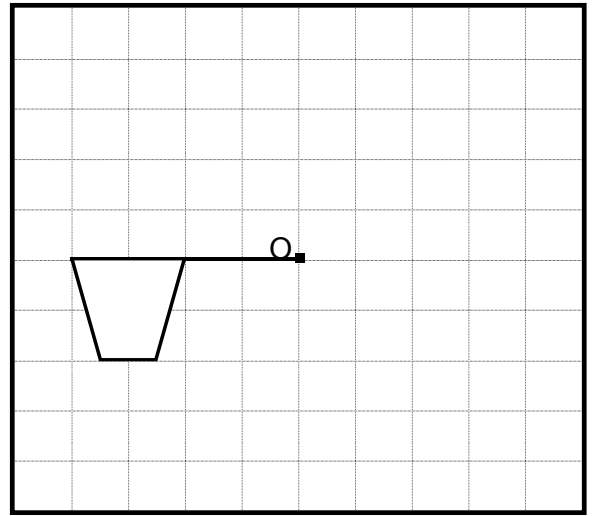


2. Copy and complete each shape below so that it has quarter-turn symmetry about O.

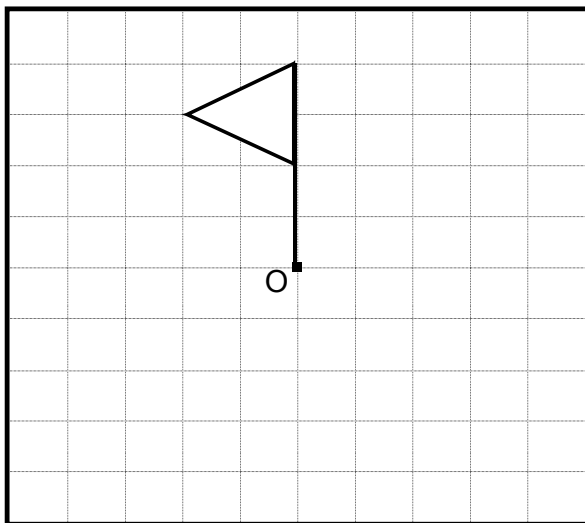
(a)



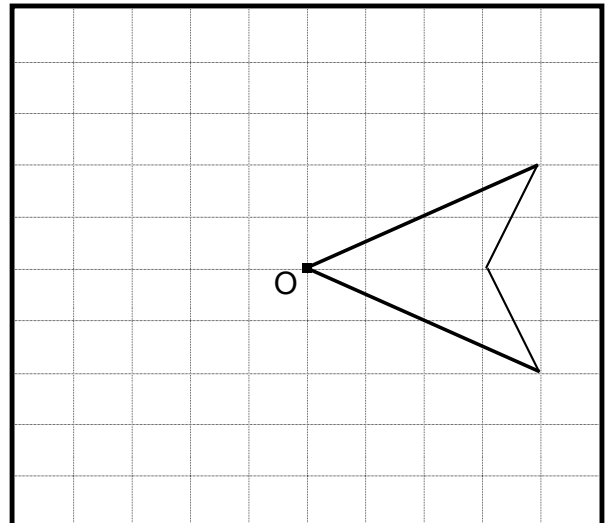
(b)



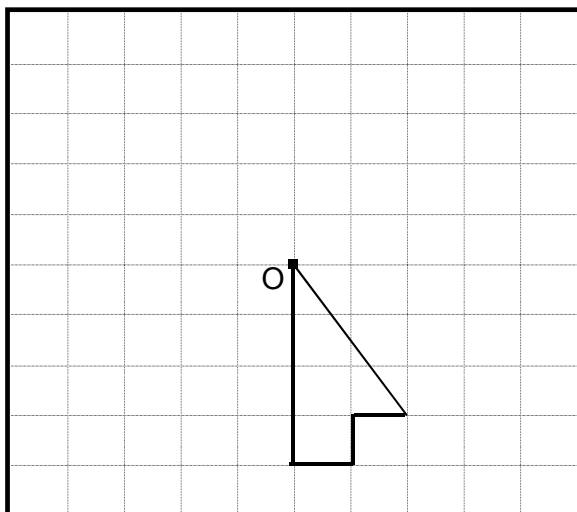
(c)



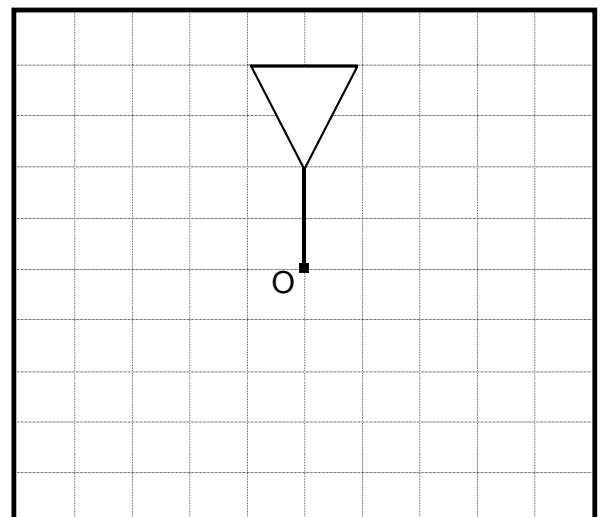
(d)



(e)

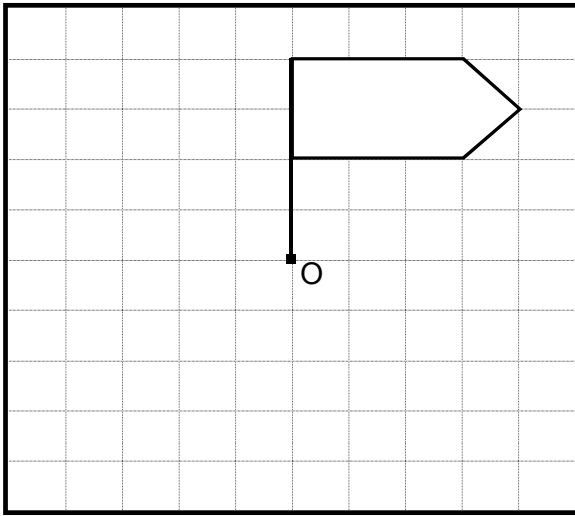


(f)

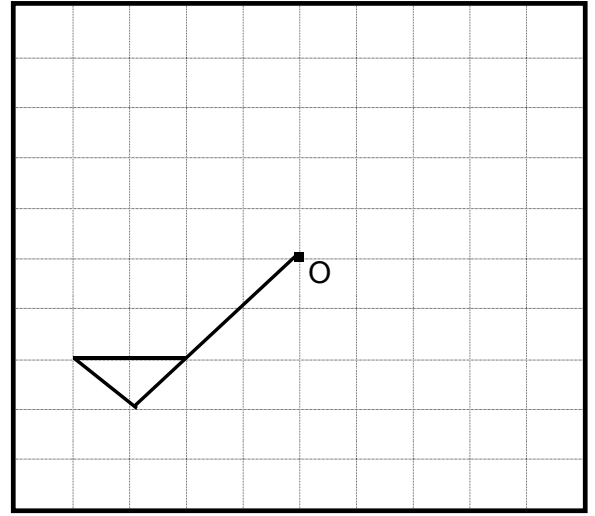


3. Each shape below is rotated through  $90^\circ$  about the point O. Copy and complete each shape.

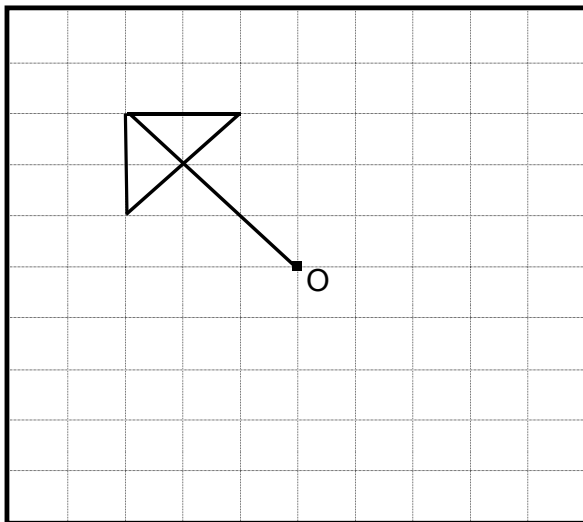
(a)



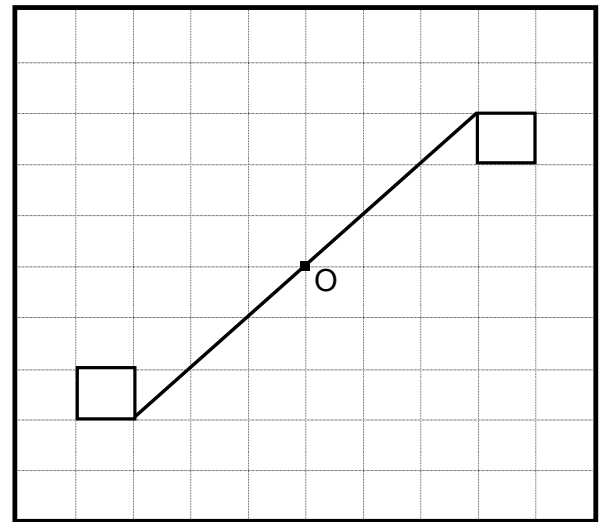
(b)



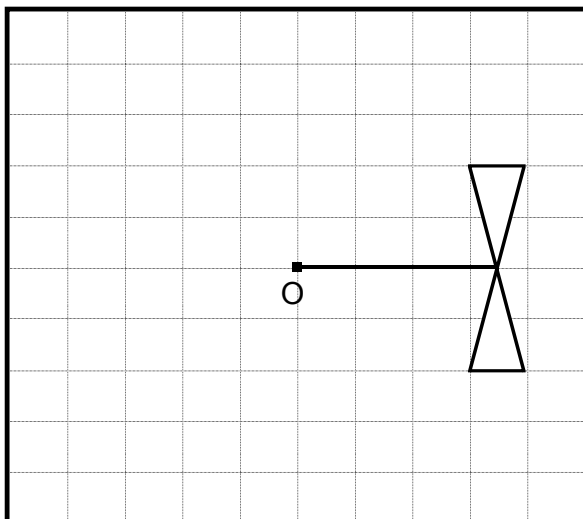
(c)



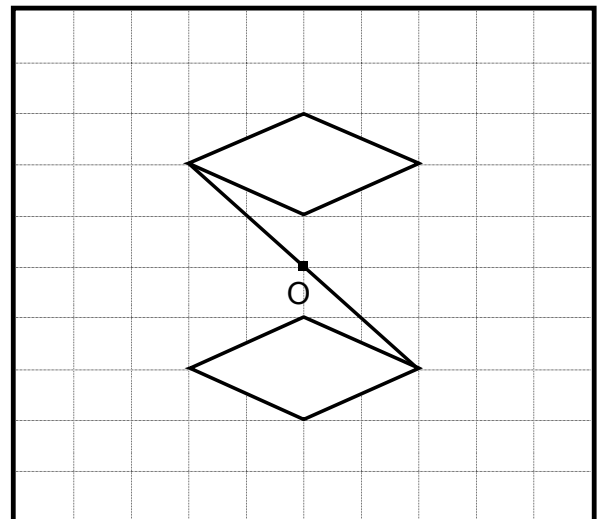
(d)



(e)

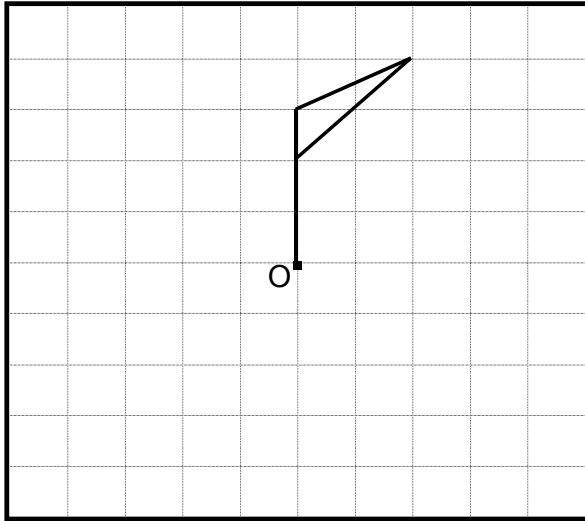


(f)

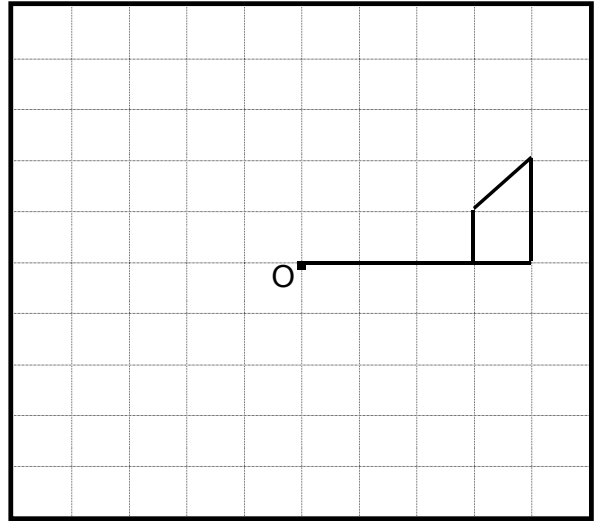


4. Copy and complete the diagrams below so that each shape has rotational symmetry of order 4.

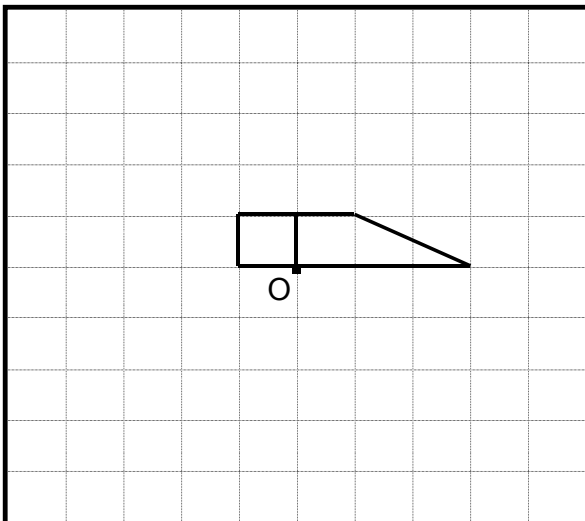
(a)



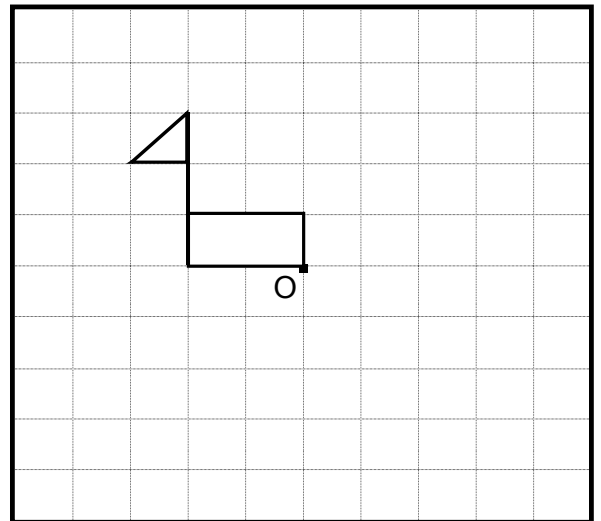
(b)



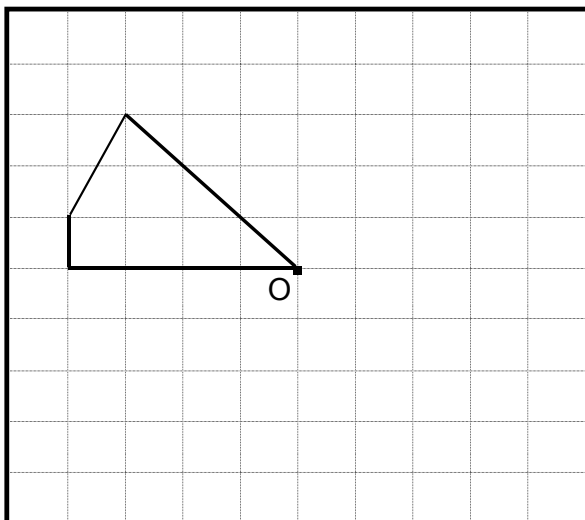
(c)



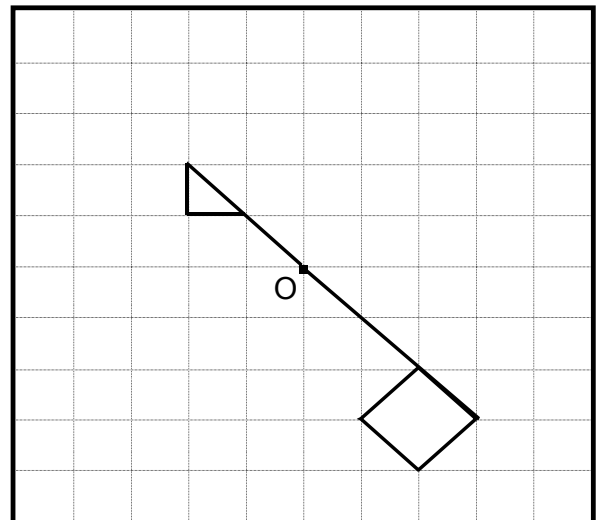
(d)



(e)

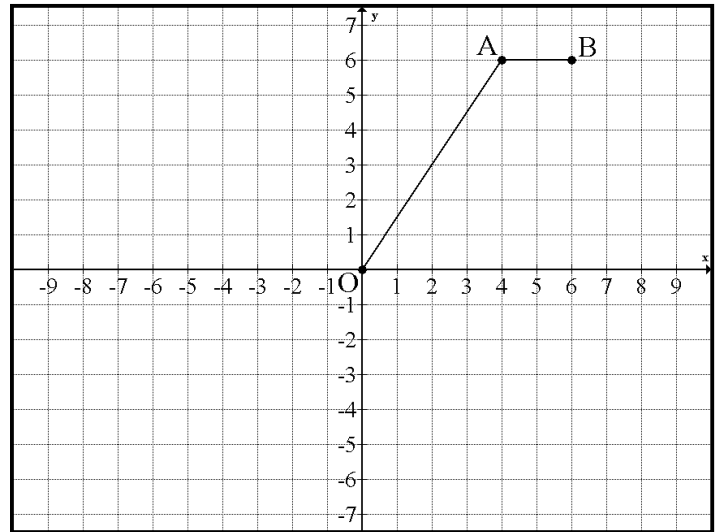


(f)



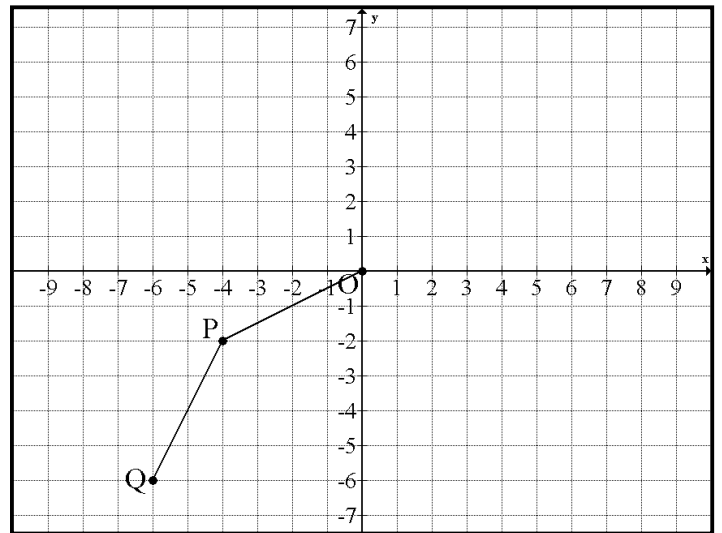
5. A is the point (4,6) and B is the point (6,6).

- (a) Copy the diagram and find the point C given OABC is a kite.
- (b) Give the kite OABC a half-turn about the point O.



6. P is the point (-4,-2) and Q is (-6,-6).

- (a) OPQR is a rhombus.  
Copy the diagram and find the point R.
- (b) Rotate OPQR through  $90^\circ$  about the point O.



7. E is the point (8,-2) and G is (2,-4).

- (a) OEFG is a parallelogram.  
Copy the diagram and find F.
- (b) Rotate OEFG through  $90^\circ$  about the point O.

