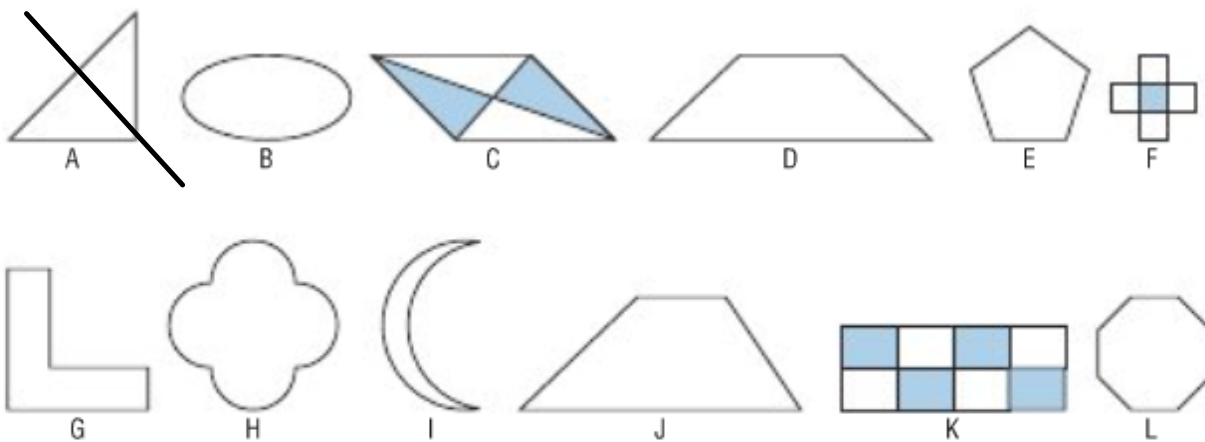




Section 7.5 Reflections and Line Symmetry

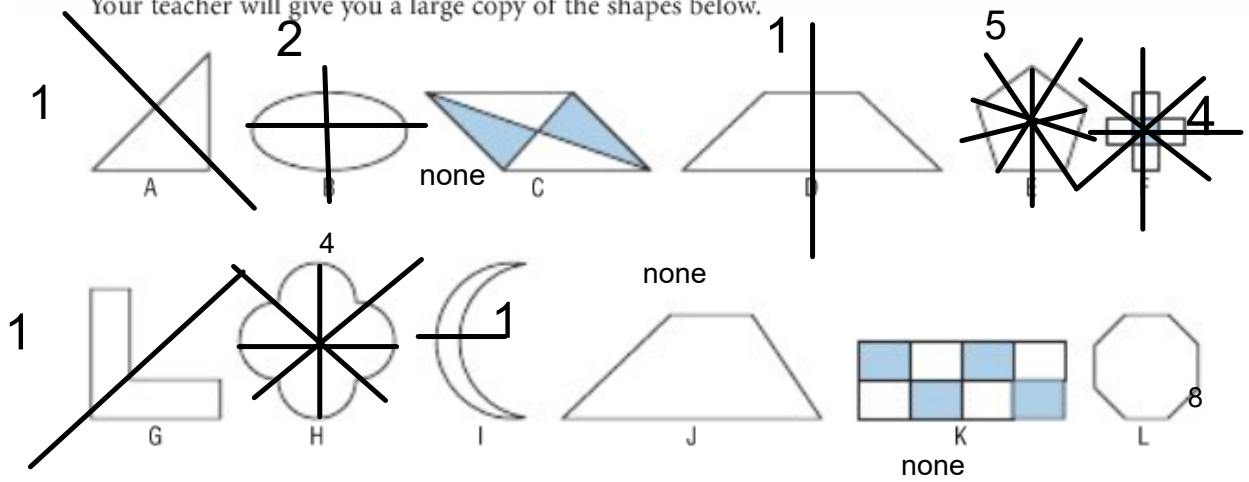


Your teacher will give you a large copy of the shapes below.

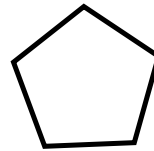


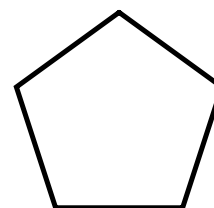
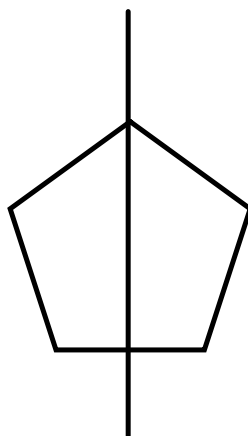
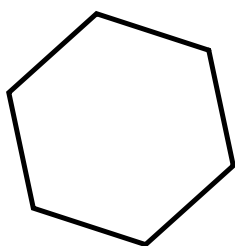
Which shapes have the same number of lines of symmetry?
 Sort the shapes according to the number of lines of symmetry they have.
 Which shapes do not have line symmetry? How can you tell?

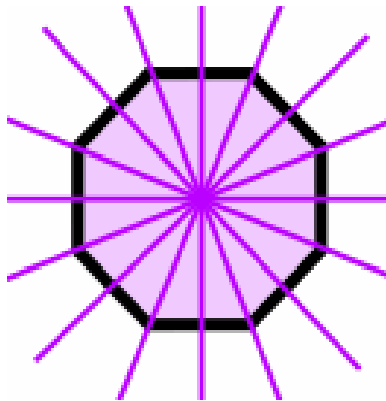
Your teacher will give you a large copy of the shapes below.



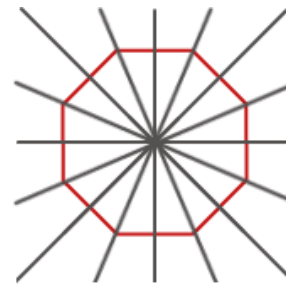
Which shapes have the same number of lines of symmetry?
 Sort the shapes according to the number of lines of symmetry they have.
 Which shapes do not have line symmetry? How can you tell?



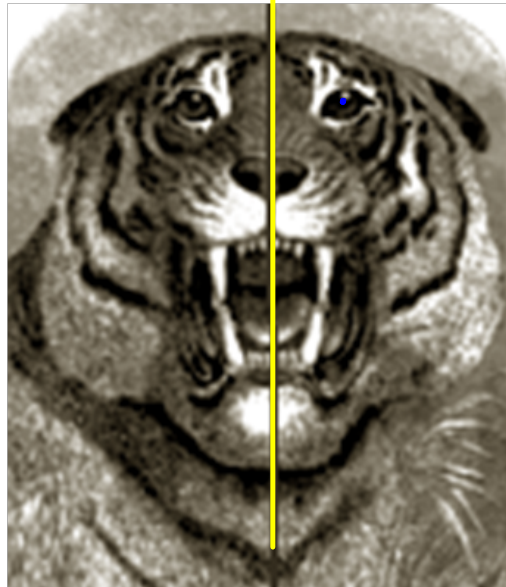




A **Regular Octagon** (8 sides)
has **8** Lines of Symmetry



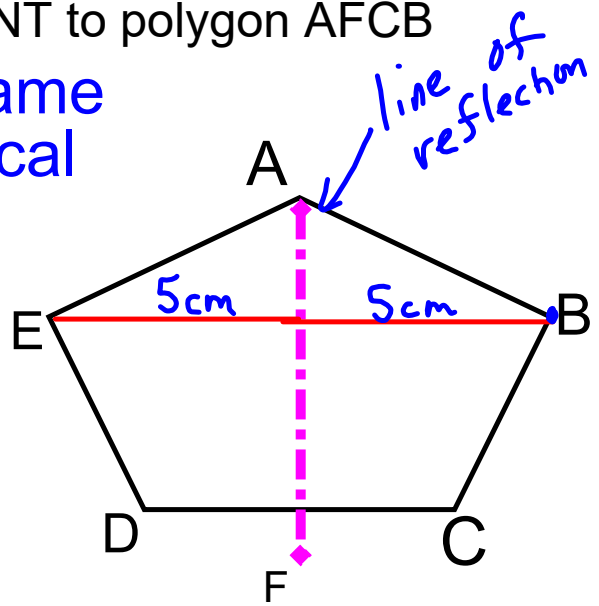
A ***line of symmetry*** is also known as a ***line of reflection***.



Polygon AFDE is CONGRUENT to polygon AFCB

- ↳ the same
- ↳ identical

Each point on one side of the *line of symmetry* has a corresponding ^{matching} point on the other side. These corresponding points are equal distance, *equidistant*, from the line of symmetry



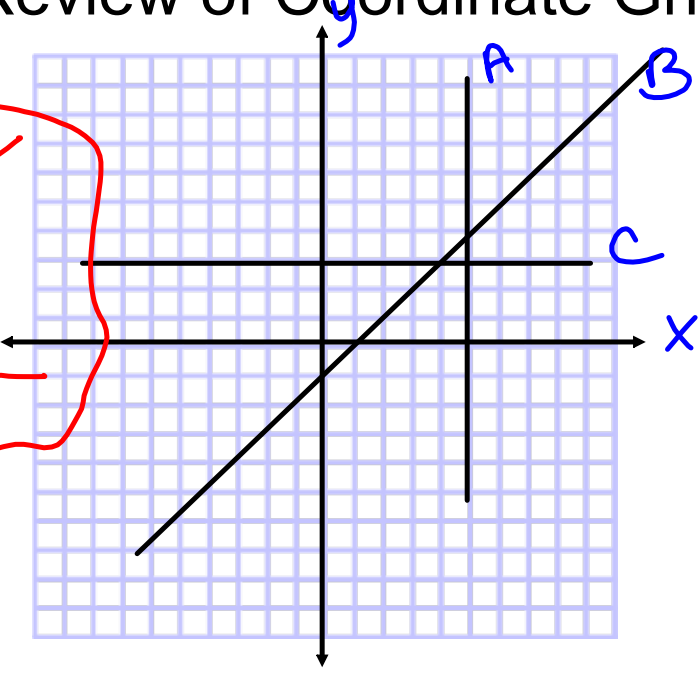
* Not a regular pentagon *

Quick Review of Coordinate Grid

oblique???

vertical???

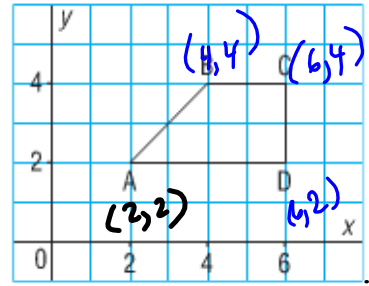
horizontal???



Quadrilateral ABCD is part of a larger shape.

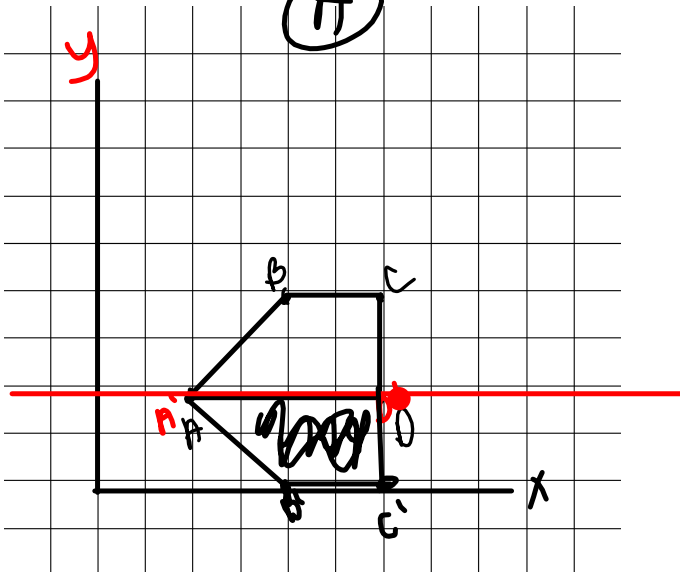
- Draw the image of ABCD after each reflection below.
- Write the coordinates of the larger shape formed by ABCD and its image.
- Describe the larger shape and its symmetry.

(x, y)

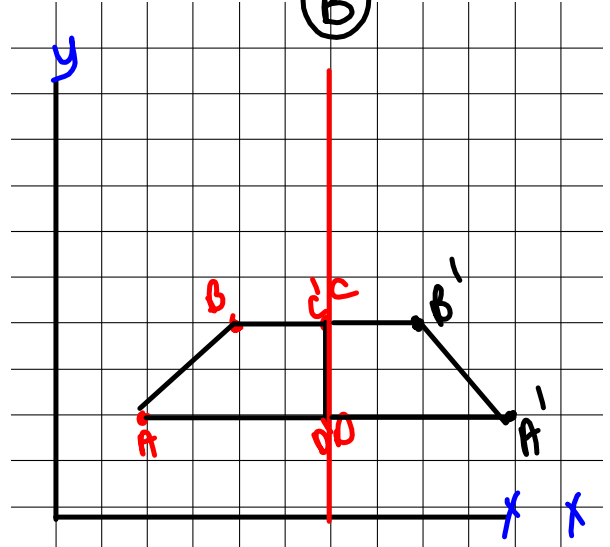


- a reflection in the horizontal line through 2 on the y-axis
- a reflection in the vertical line through 6 on the x-axis
- a reflection in an oblique line through $(0, 0)$ and $(6, 6)$

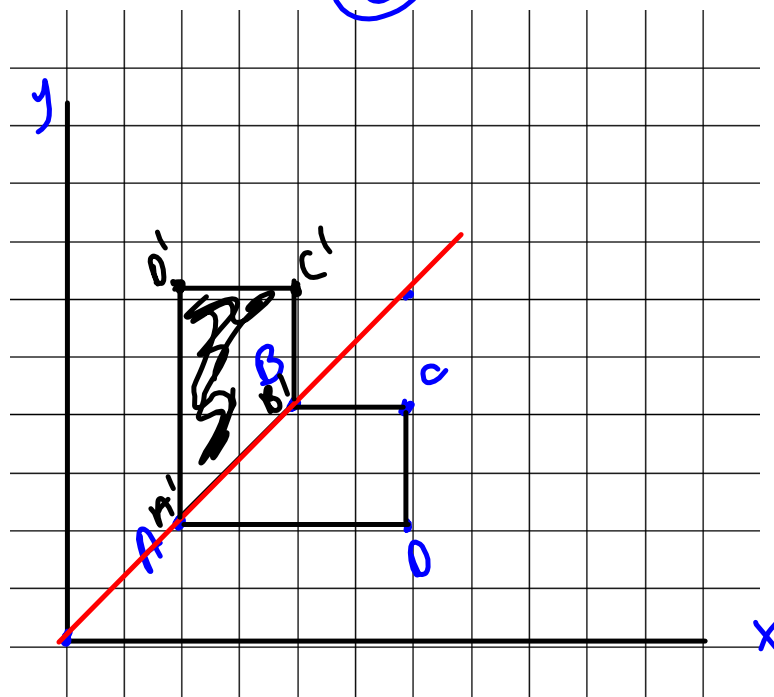
(A)



(B)

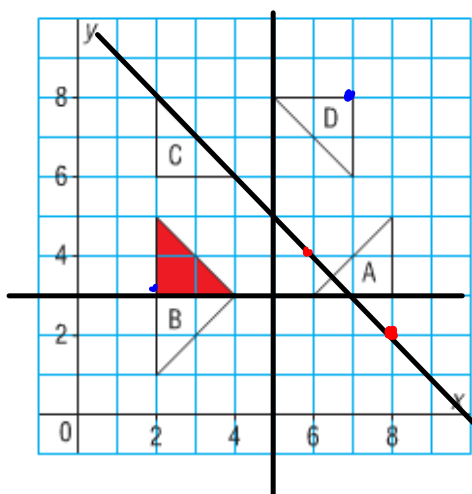


(C)



$(0, 0)$
 $(6, 6)$

Identify the triangles that are related to the red triangle by a line of reflection.
Describe the position of each line of symmetry.



A is ~~is~~ a reflection of the original triangle through 5 on the x axis

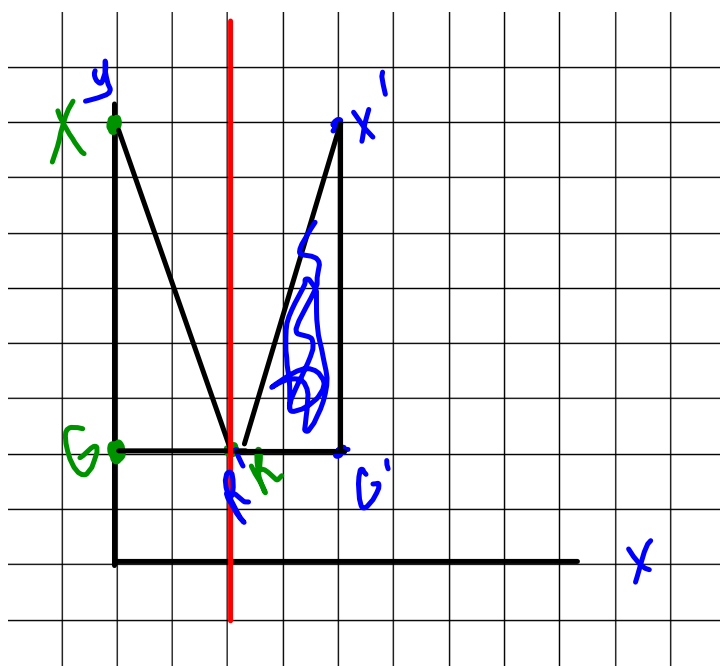
B is ~~is~~ a reflection of the original triangle through the 3 on the y axis

C ~~is~~ not a reflection....

D is ~~is~~ not a reflection through point $(8,2)$ $(6,4)$

Plot the following points: G (0,2) R (2,2) X (0,8)

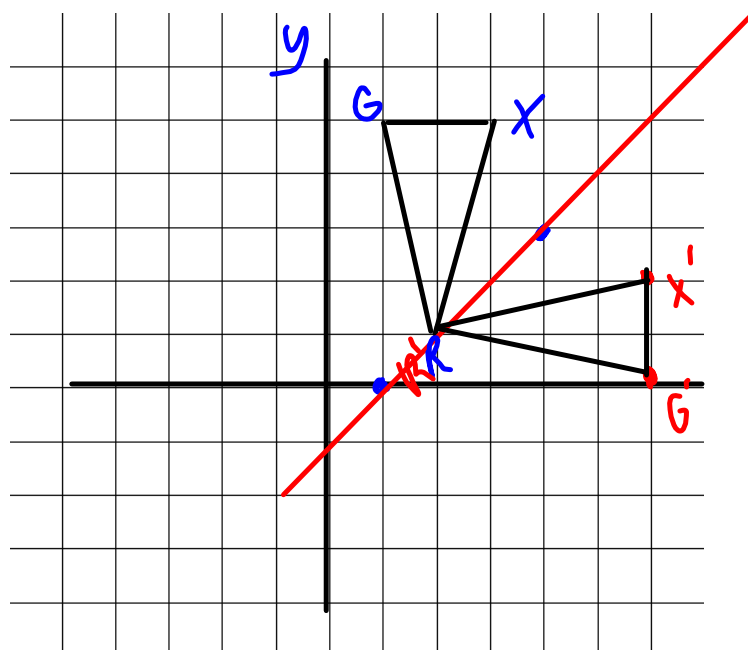
A. Draw a reflection through 2 on x axis



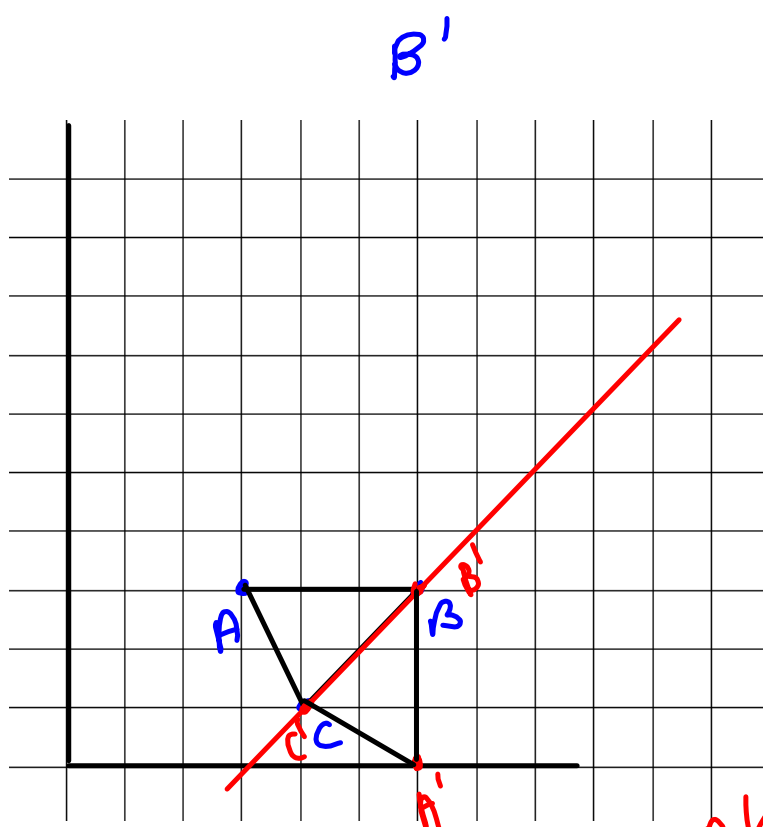
Coordinates
for
 $G' (4,2)$
 $R' (2,2)$
 $X' (4,8)$

Plot the following points: G (1,5) R (2,1) X(3,5)

B. Draw a reflection through the line passing between (1,0) and (4,3)



G'
(6,4)



B'

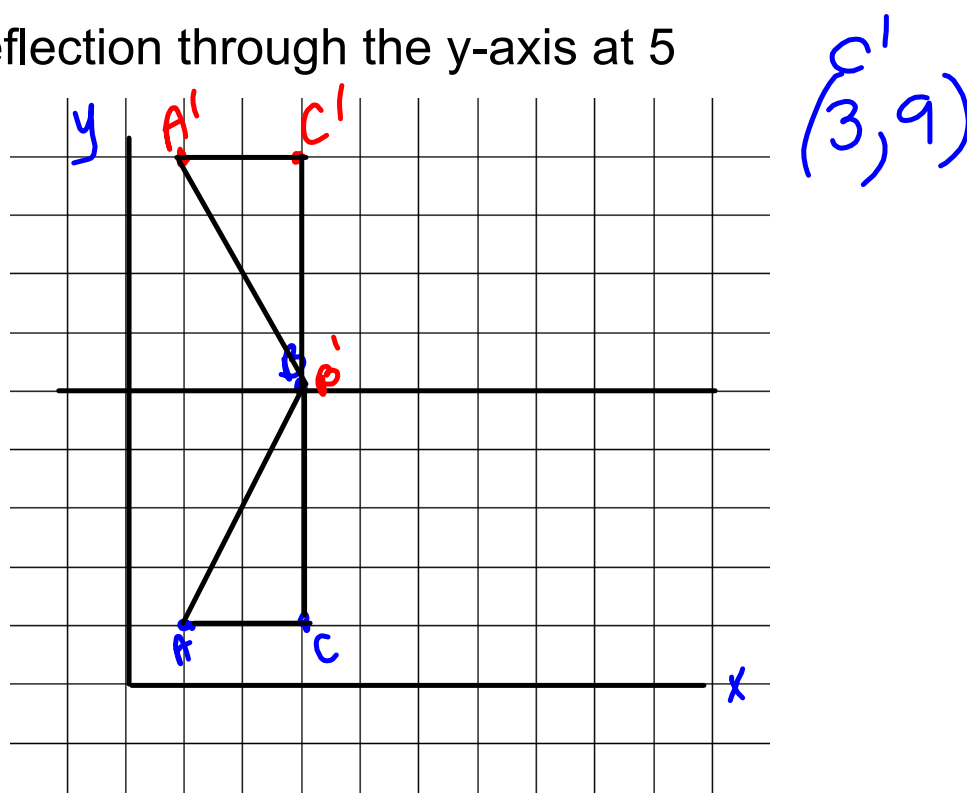
Plot A (3,3)
 Plot B (6,3)
 Plot C (4,1)

Draw a line of reflection through points (4,1) and (6,3)

$A'(6,0)$

Plot the following points: **A** (1,1), **B** (3,5) and **C** (3, 1)

Draw a reflection through the y-axis at 5

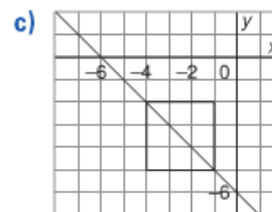
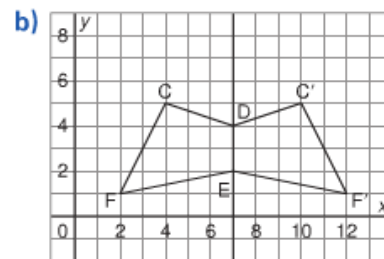
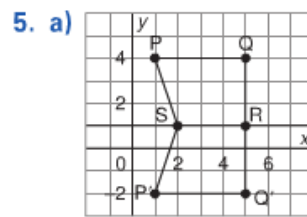
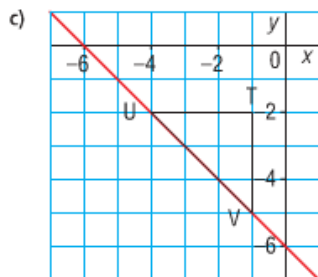
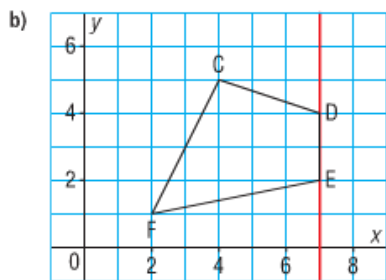
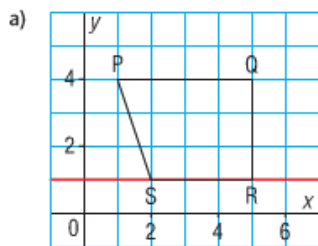


Homework showmoH

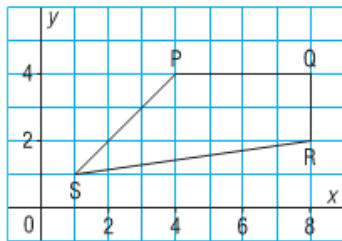
Page 358

3, 5
8
9, 10

Answers
Page 525-526



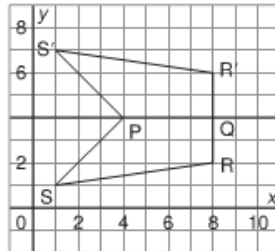
8. Quadrilateral PQRS is part of a larger shape



After each reflection below:

- Draw the image of PQRS.
 - Write the coordinates of the larger shape formed by PQRS and its image.
 - Describe the larger shape and its symmetry.
- a) a reflection in the horizontal line through 4 on the y -axis
 - b) a reflection in the vertical line through 8 on the x -axis
 - c) a reflection in the oblique line through (1, 1) and (4, 4)

8. a)

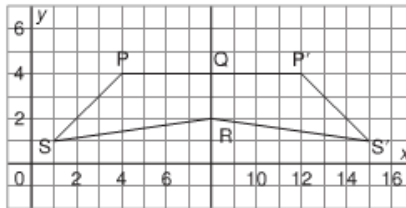


The larger shape has coordinates:

$R(8, 2), S(1, 1), P(4, 4), S'(1, 7), R'(8, 6)$

It is a pentagon with a line of symmetry through side PQ .

b)

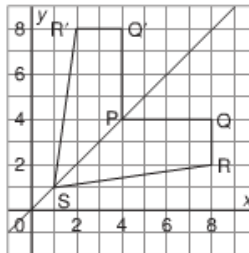


The larger shape has coordinates:

$R(8, 2), S(1, 1), P(4, 4), P'(12, 4), S'(15, 1)$

It is a pentagon with a line of symmetry through side QR .

c)

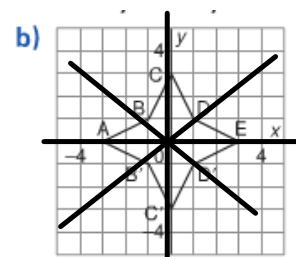
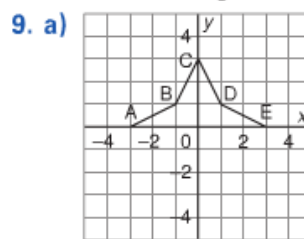


The larger shape has coordinates:

$P(4, 4), Q(8, 4), R(8, 2), S(1, 1), R'(2, 8), Q'(4, 8)$

It is a hexagon with a line of symmetry through side PS .

9. a) Graph these points on grid paper:
 $A(-3, 0)$, $B(-1, 1)$, $C(0, 3)$,
 $D(1, 1)$, $E(3, 0)$.
 Join the points to form polygon ABCDE.
- b) Reflect the polygon in the x -axis. Draw and label its image.
- c) Write the coordinates of the shape formed by the polygon and its image.
- d) How many lines of symmetry does this shape have? How do you know?



- c) $A(-3, 0)$, $B(-1, 1)$, $C(0, 3)$, $D(1, 1)$, $E(3, 0)$,
 $D'(1, -1)$, $C'(0, -3)$, $B'(-1, -1)$
- d) The shape has 4 lines of symmetry: x -axis, y -axis, the line through points B' and D , the line through points B and D'

