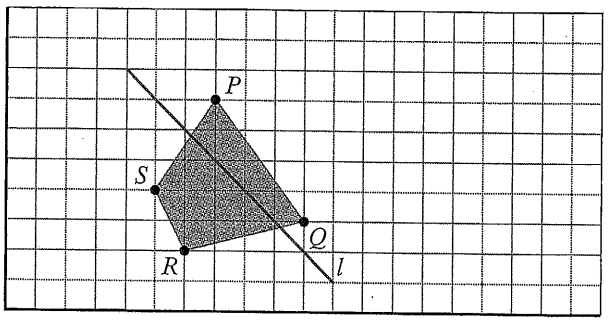
3. Given a reflection with axis l as shown in the following figure, find

(a) the image of S under the reflection.

(b) the image of quadrilateral $PQRS$ under the reflection.

(c) the fixed point of the reflection closest to Q.

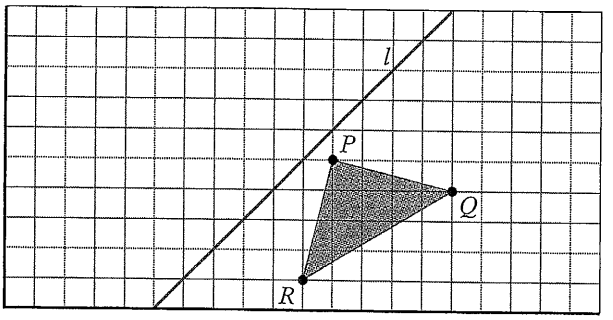


4. Given a reflection with axis l as shown in the following figure, find

(a) the image of P under the reflection.

(b) the image of triangle PQR under the reflection.

(c) the fixed point of the reflection closest to P.



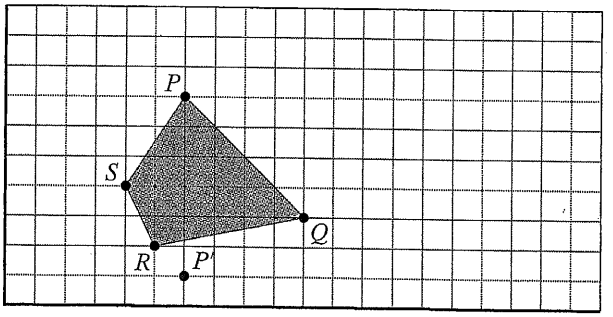
5. Given a reflection that sends the point P to the point P' as shown in the following figure, find

(a) the axis of reflection.

(b) the image of S under the reflection.

(c) the image of quadrilateral $PQRS$ under the reflection.

(d) a point on the quadrilateral $PQRS$ that is a fixed point of the reflection.



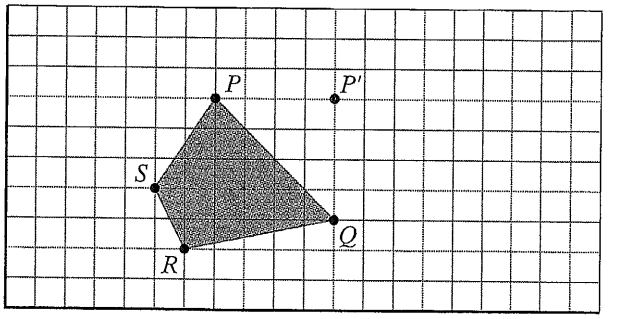
6. Given a reflection that sends the point P to the point P' as shown in the following figure, find

(a) the axis of reflection.

(b) the image of S under the reflection.

(c) the image of quadrilateral $PQRS$ under the reflection.

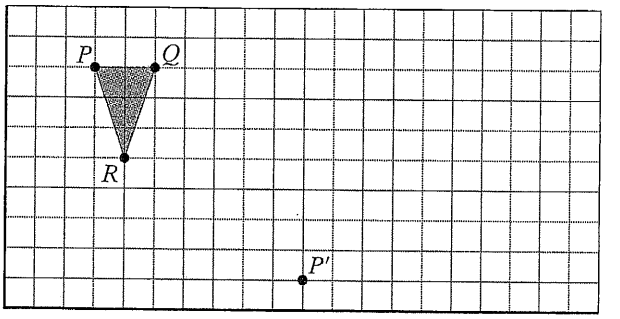
(d) a point on the quadrilateral $PQRS$ that is a fixed point of the reflection.



7. Given a reflection that sends the point P to the point P' as shown in the following figure, find

(a) the axis of reflection.

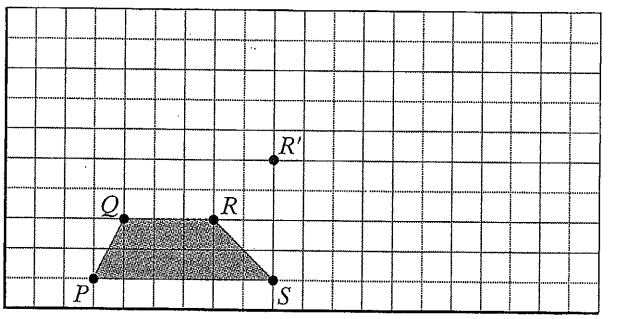
(b) the image of triangle PQR under the reflection.



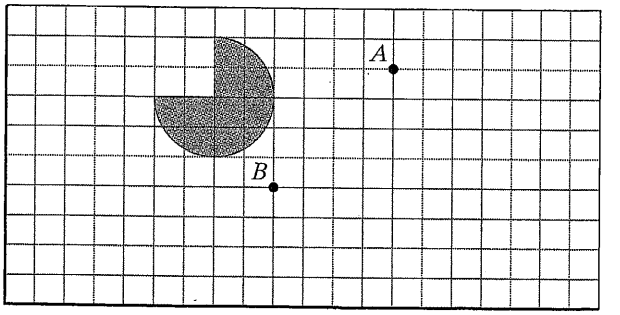
8. Given a reflection that sends the point R to the point R' as shown in the following figure, find

(a) the axis of reflection.

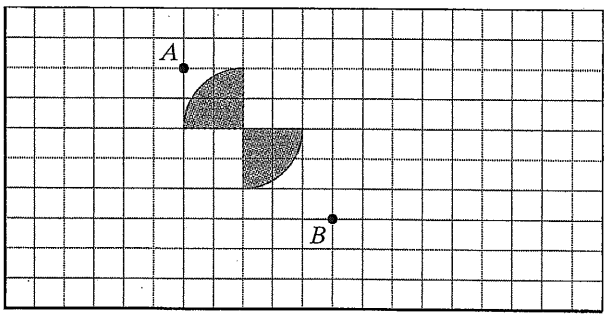
(b) the image of quadrilateral $PQRS$ under the reflection.



9. Consider a reflection for which A and B in the following figure are fixed points. Find the image of the shaded region under the reflection.

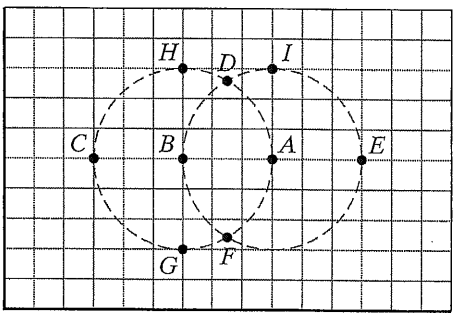


10. Consider a reflection for which A and B in the following figure are fixed points. Find the image of the shaded region under the reflection.



B. Rotations

Exercises 11 and 12 refer to the following figure.



11. Which point in the figure is

(a) the image of B under a 90° clockwise rotation with rotocenter A?

(b) the image of B under a 180° rotation with rotocenter A?

(c) the image of A under a 90° clockwise rotation with rotocenter B?

(d) the image of D under a 60° clockwise rotation with rotocenter B?

(e) the image of D under a 120° clockwise rotation with rotocenter B?

(f) the image of D under a 120° counterclockwise rotation with rotocenter B?

(g) the image of I under a 3690° clockwise rotation with rotocenter A?

(h) the image of I under a 7530° clockwise rotation with rotocenter A?

12. Which point in the figure is

(a) the image of C under a 90° clockwise rotation with rotocenter B?

(b) the image of C under a 90° counterclockwise rotation with rotocenter B?

(c) the image of H under a 90° clockwise rotation with rotocenter B?

(d) the image of F under a 60° clockwise rotation with rotocenter A?

(e) the image of F under a 120° clockwise rotation with rotocenter B?

(f) the image of I under a 90° clockwise rotation with rotocenter H?

(g) the image of G under a 3870° counterclockwise rotation with rotocenter B?

(h) the image of F under a 5550° counterclockwise rotation with rotocenter B?

13. In each of the following, give an answer between 0° and 360°.

(a) A clockwise rotation by an angle of 250° is equivalent to a counterclockwise rotation by an angle of _____.

(b) A clockwise rotation by an angle of 710° is equivalent to a clockwise rotation by an angle of _____.

(c) A counterclockwise rotation by an angle of 710° is equivalent to a clockwise rotation by an angle of _____.

(d) A clockwise rotation by an angle of 3681° is equivalent to a clockwise rotation by an angle of _____.

14. In each of the following, give an answer between 0° and 360°.

(a) A clockwise rotation by an angle of 500° is equivalent to a clockwise rotation by an angle of _____.

(b) A clockwise rotation by an angle of 500° is equivalent to a counterclockwise rotation by an angle of _____.

(c) A clockwise rotation by an angle of 5000° is equivalent to a clockwise rotation by an angle of _____.

(d) A clockwise rotation by an angle of 50,000° is equivalent to a clockwise rotation by an angle of _____.

15. Given a rotation that moves the point B to the point B' and the point C to the point C' as shown in the followng figure, find

(a) the rotocenter.

(b) the image of triangle ABC under the rotation.