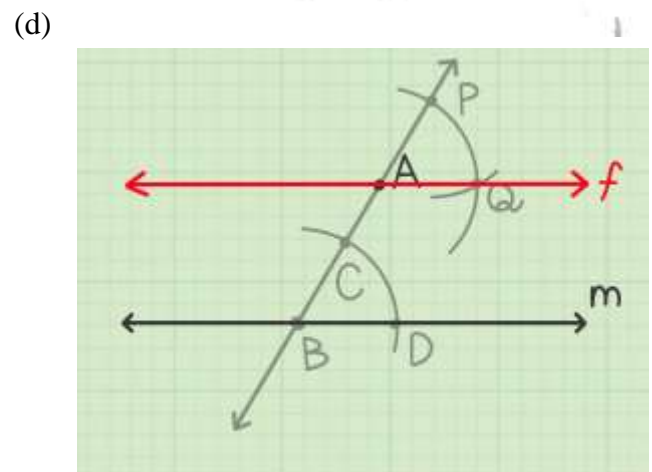
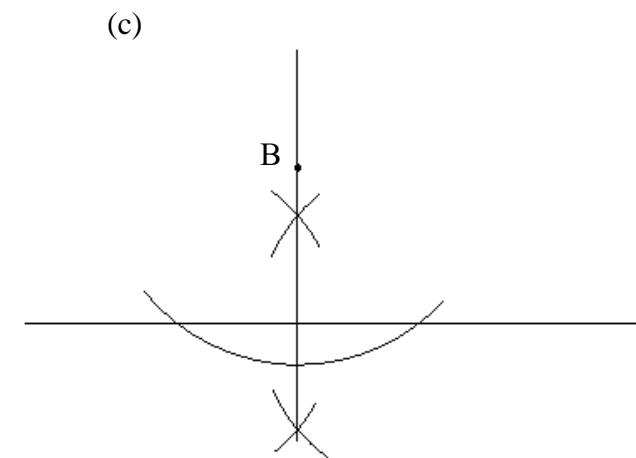
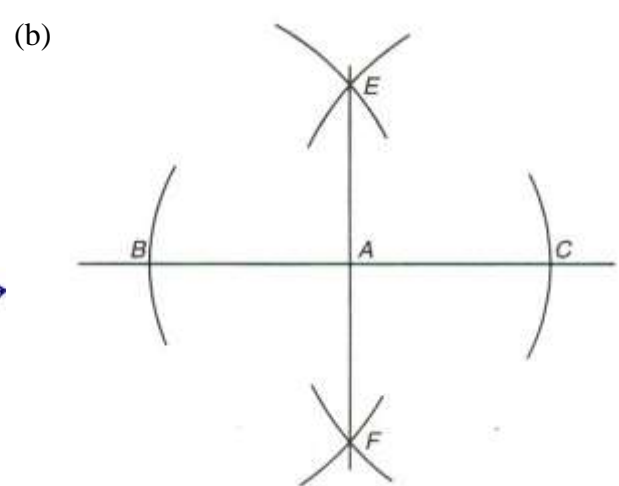
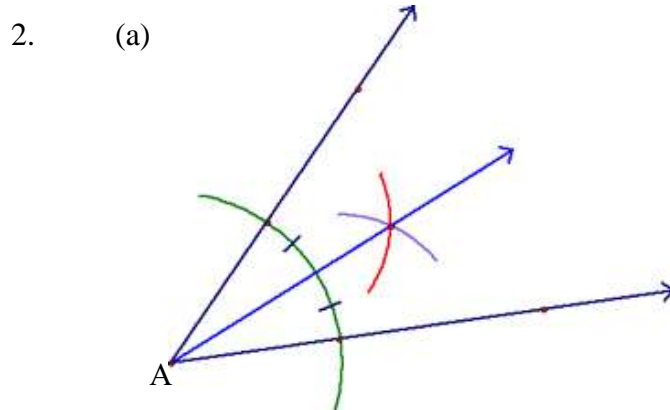


1. (a) $\triangle ABD \cong \triangle CBD$ (by Side-Angle-Side)
 (b) $\triangle ABC \cong \triangle EDC$ (by Angle-Angle-Side or Hypotenuse-Angle)
 (c) $\triangle ABC \cong \triangle ADC$ (by Side-Side-Side). This leads to $\triangle ABE \cong \triangle ADE$ (by Angle-Side-Angle) and $\triangle EBC \cong \triangle EDC$ (by Angle-Side-Angle). With CPCTC, you can then say that $\triangle EBC \cong \triangle EDC$ by SAS and also $\triangle ABE \cong \triangle ADE$ by SAS.



3. AECF is a parallelogram. $\triangle EDF \cong \triangle FBC$ (by Side-Angle-Side), with $\overline{DE} \cong \overline{BF}$ (Given), $\overline{DA} \cong \overline{BC}$ (All 4 sides of a square are congruent), and $\angle D \cong \angle B$ (All 4 angles of a square are congruent).

Then, since the triangles are congruent, we have $\overline{AE} \cong \overline{CF}$. Since $\overline{DC} \cong \overline{BA}$ and $\overline{DE} \cong \overline{BF}$, \overline{EC} must be congruent to \overline{FA} .

With 2 pairs of opposite sides congruent, AECF must be a parallelogram.

4. (a) $x = 8, y = 5$ (b) $x = 6.5, WY = 6$
 5. 24.75 ft or 24'9"
 6. 15

7. (a) 70° (b) 62° (c) 48°

8. $AB = 6$, $BC = 11$, $AC = 11$

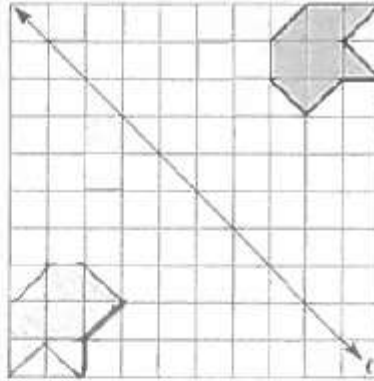
9. 12 m

10. (i) No (ii) Yes (iii) Yes

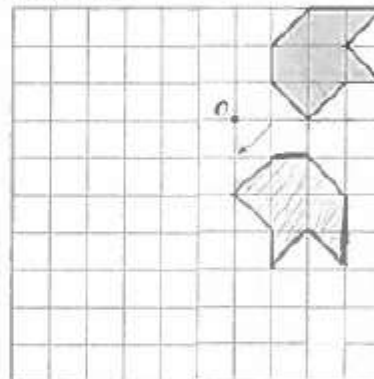
11. 51.2 m

12. No. They must also bisect each other.

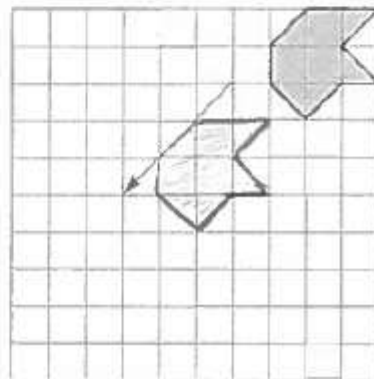
13. (a) A reflection in l



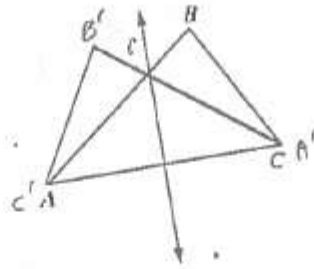
(b) rotation in O through the given arc



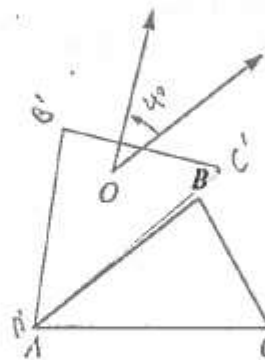
(c) A translation, as pictured



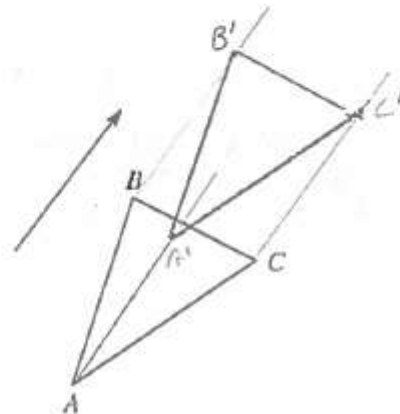
14. (a) Through a reflection in l



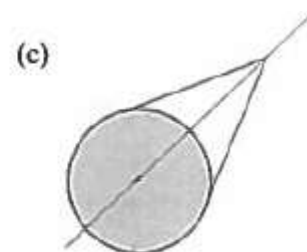
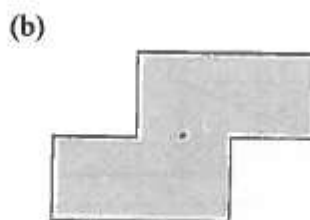
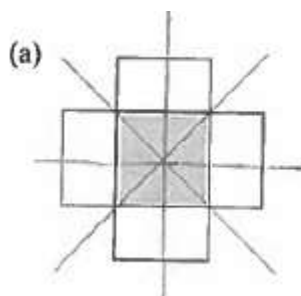
- (b) Through the given rotation in O



- (c) By the translation (with arrow pictured)

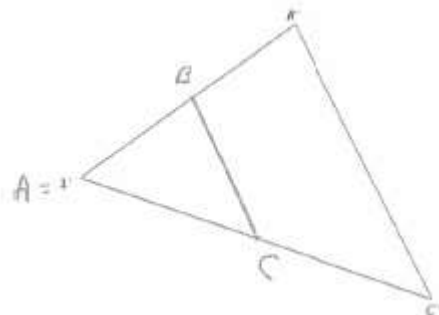


15. (a) There are 4 lines of reflection (vertical, horizontal, and two diagonals) and 3 rotations (90° , 180° , 270°).
- (b) The figure has 180° rotational (point) symmetry, but no reflectional symmetry.
- (c) There is one line of reflection (through the center of the circle and the vertex of the exterior angle), but the figure has no rotational symmetry.

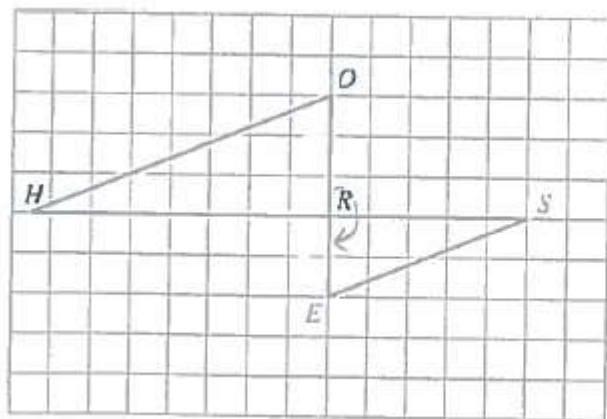


16. Answers may vary. E.g., (a) A, M, or T (b) S, O, or N

17. Answers may vary. E.g., (a) maple leaf (b) starfish
 18.



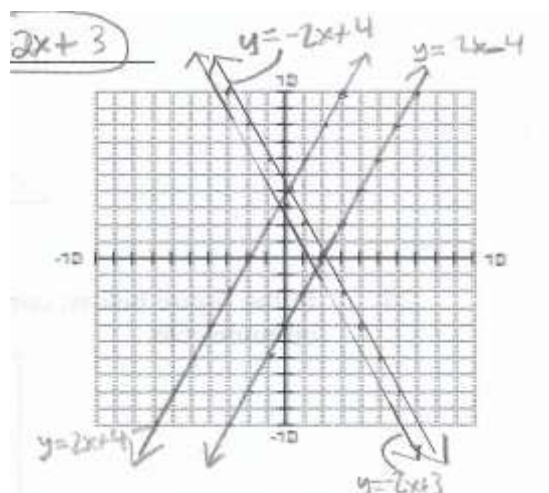
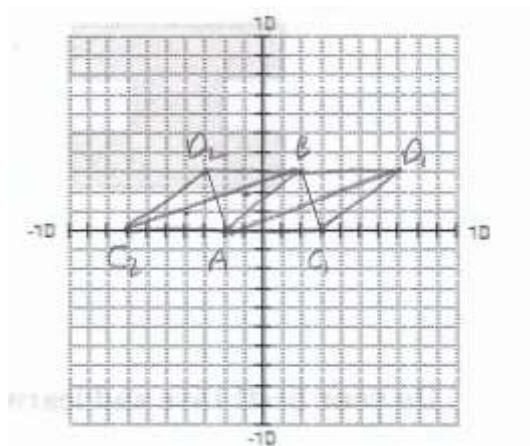
19.



direction
 scale: $\frac{2}{3}$
 180° rotation
 with R as center
 of rotation

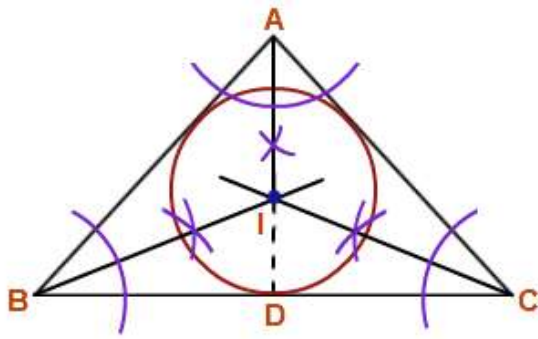
20. (a) Answers may vary. E.g., (0, 4), (2, 0) (b) (-2, 7), (0, 3); No; $y = -2x + 3$
 (c) x-axis, $y = 2x - 4$; y-axis, $y = 2x + 4$
 (d) The graphs of the 4 lines are on the graph to the right.

21. (a) $C_1(3, 0)$ or $C_2(-7, 0)$
 (b) $B_1(7, 3)$ or $B_2(-6, 3)$
 (c) The slopes are $\frac{1}{3}$ and -3 , and $\frac{1}{3} \times -3 = -1$.

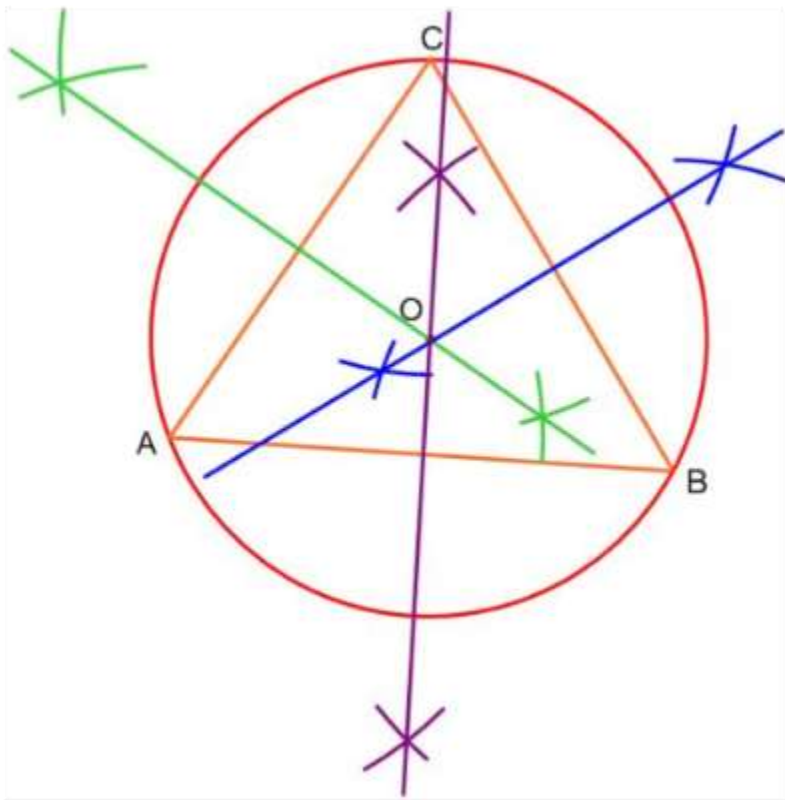


22. (a) I (b) G (c) C (d) H

23.



24.



25. (a) Yes (b) Yes (c) No