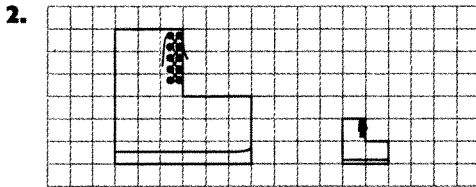
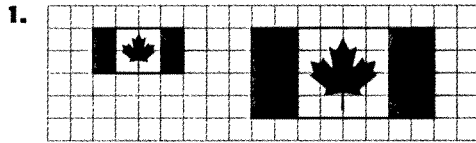


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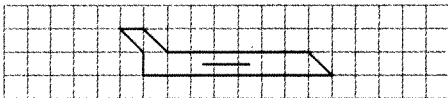
- Practice** 1. 2 2. $\frac{1}{3}$ 9. R'(6, 9), S'(-3, 12), T'(-9, -6) 10. D'(3, 2), E'(-1, 3), F'(-2, -2), G'(2, -3) **Problems and Applications** 13. b) 8 c) P'(-6, 6), Q'(-6, -6), R'(6, -6) d) 72 e) P''(-1, 1), Q''(-1, -1), R''(1, -1) f) 2 g) 72:8 or 9:1; 2:8 or 1:4 h) the square of the scale factor 15. $\frac{1}{2}$ 16. 2 17. 3 18. identical 19. b) A'(4, 6), B'(-5, -6), C'(16, -9)

Practice Pg 310

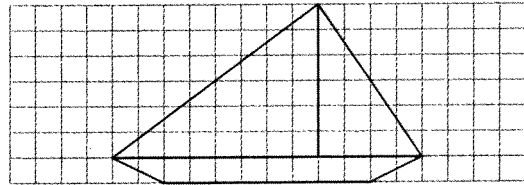
A figure is shown with its image to the right. What is the scale factor?



3. Copy the figure onto grid paper and enlarge it by a scale factor of 2.



4. Copy the figure onto grid paper and reduce it by a scale factor of $\frac{1}{2}$.



Draw the dilation image of each line segment under the given mapping.

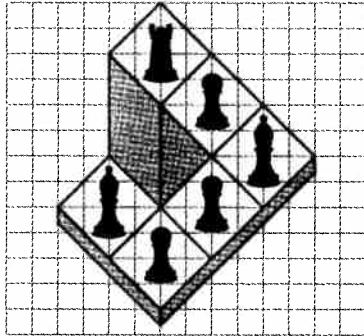
Line Segment	Mapping
5. A(3, 2), B(1, 4)	$(x, y) \rightarrow (2x, 2y)$
6. C(6, 4), D(-2, 2)	$(x, y) \rightarrow (\frac{1}{2}x, \frac{1}{2}y)$
7. E(-1, -1), F(1, 2)	$(x, y) \rightarrow (3x, 3y)$
8. G(9, 3), H(-6, 0)	$(x, y) \rightarrow (\frac{1}{3}x, \frac{1}{3}y)$

9. $\triangle RST$ has vertices R(2, 3), S(-1, 4), and T(-3, -2). Find the image of $\triangle RST$ under the mapping $(x, y) \rightarrow (3x, 3y)$.

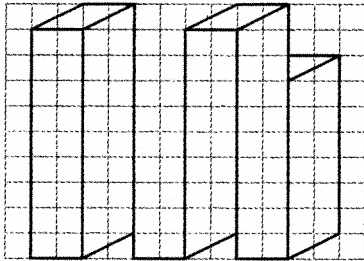
10. Quadrilateral DEFG has vertices $D(6, 4)$, $E(-2, 6)$, $F(-4, -4)$, and $G(4, -6)$. Find the image of quadrilateral DEFG under the mapping $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$.

Problems and Applications

11. Copy this piece of an impossible chessboard onto grid paper and enlarge it by a scale factor of 2.



12. Copy this disappearing block puzzle onto grid paper and reduce it by a scale factor of $\frac{1}{2}$.



13. $\triangle PQR$ has vertices $P(-2, 2)$, $Q(-2, -2)$, and $R(2, -2)$.

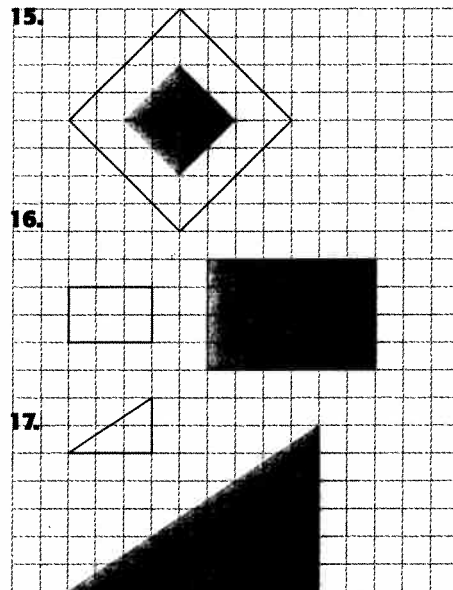
- Draw $\triangle PQR$ on grid paper.
- Calculate the area of $\triangle PQR$.
- Find the image of $\triangle PQR$, $\triangle P'Q'R'$, under the mapping $(x, y) \rightarrow (3x, 3y)$.
- Calculate the area of $\triangle P'Q'R'$.
- Find the image of $\triangle PQR$, $\triangle P''Q''R''$, under the mapping $(x, y) \rightarrow \left(\frac{1}{2}x, \frac{1}{2}y\right)$.
- Calculate the area of $\triangle P''Q''R''$.
- Write the following ratios:
 area $\triangle P'Q'R'$: area $\triangle PQR$
 area $\triangle P''Q''R''$: area $\triangle PQR$
- How is each ratio related to the scale factor that produced the image?

14. a) State the types of dilations you see in:

- a map of a province
- a movie screen
- a television screen
- a blueprint of a house

b) Find 2 other examples of enlargements or reductions in real-world objects. Estimate the scale factors involved.

In questions 15–17, copy the figure and its red image onto grid paper. Find the dilatation centre and state the scale factor.



18. What would the image of a triangle look like under this mapping?
 $(x, y) \rightarrow (1x, 1y)$

19. $\triangle ABC$ has vertices $A(4, 2)$, $B(1, -2)$, and $C(8, -3)$.

- Draw $\triangle ABC$ on grid paper.
- Find the image of $\triangle ABC$ for a dilatation with centre $(4, 0)$ and a scale factor of 2.

20. Use a figure of your choice and investigate these mappings. Describe your findings.

- $(x, y) \rightarrow (2x, 4y)$
- $(x, y) \rightarrow (-2x, -2y)$