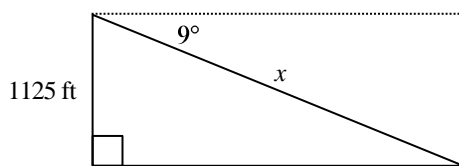


Ch 9 SG

Short Answer

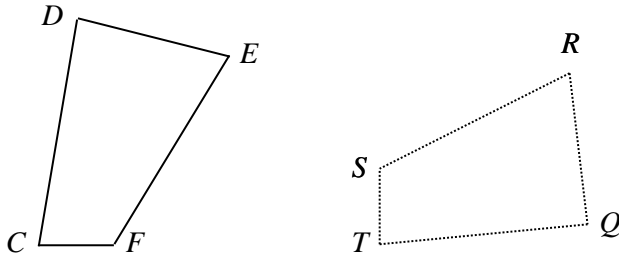
- $5(10x - 10) = -5(-4x + 4)$
- $-6p + 7 = 3(2p - 3) - 4(-10 + 4p)$
- $x - 3 \leq -12$
- $4x + 6 < -6$
- A parallelogram has sides measuring 19.5 m and 40.5 m. The height corresponding to the 19.5-m base is 8.1 m. Find the height, to the nearest tenth of a meter, corresponding to the 40.5-m base.
- Find the area of an equilateral triangle with a side of 12.
- A conveyor belt carries supplies from the first floor to the second floor, which is 24 feet higher. The belt makes a 60° angle with the ground.
 - How far do the supplies travel from one end of the conveyor belt to the other? Round your answer to the nearest foot.
 - If the belt moves at 75 ft/min, how long, to the nearest tenth of a minute, does it take the supplies to move to the second floor?
- To approach the runway, a small plane must begin a 9° descent starting from a height of 1125 feet above the ground. To the nearest tenth of a mile, how many miles from the runway is the airplane at the start of this approach?



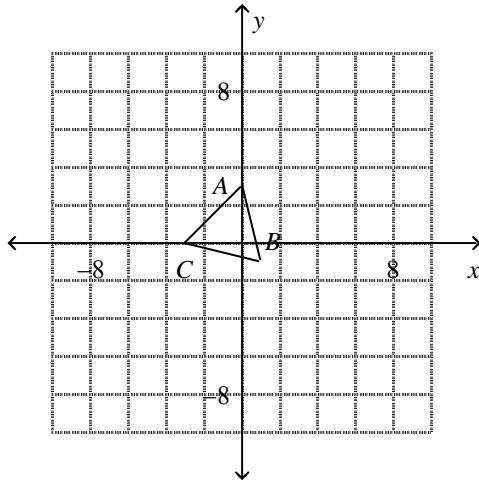
Not drawn to scale

- $-7(-4x - 3) = 7(5x - 10)$

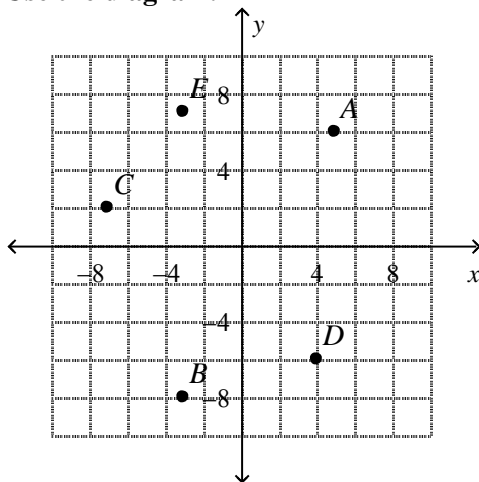
In the diagram, figure $RQTS$ is the image of figure $DEFC$.



10. Name the image of $\angle E$.
11. Name the image of \overline{DE} .
12. What image is the translation of $\triangle ABC$ given by the translation rule $(x, y) \rightarrow (x - 3, y + 5)$?



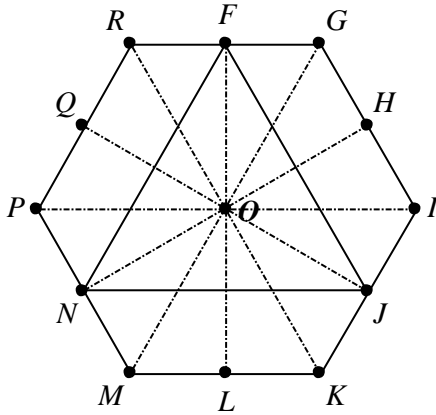
Use the diagram.



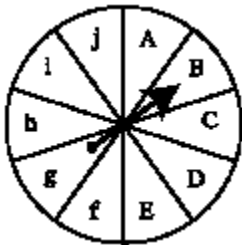
13. Find the translation rule that describes the translation $B \rightarrow A$.
14. Describe in words the translation represented by the translation rule $(x, y) \rightarrow (x - 7, y - 7)$.

15. LaKeesha was sitting in seat J1 at a soccer game when she discovered her ticket was for seat D4. Write a rule to describe the translation needed to put her in the proper seat.
16. What translation rule can be used to describe the result of the composition of $(x, y) \rightarrow (x - 9, y - 2)$ and $(x, y) \rightarrow (x + 1, y - 2)$?
17. The vertices of a triangle are $P(-7, -4)$, $Q(-7, -8)$, and $R(3, -3)$. Name the vertices of the image reflected across the line $y = x$.
18. The vertices of a triangle are $P(-3, 8)$, $Q(-6, -4)$, and $R(1, 1)$. Name the vertices of the image reflected across the x -axis.
19. Find the image of $O(-2, -1)$ after two reflections, first across the line $y = -5$, and then across the line $x = 1$.

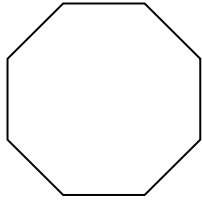
The hexagon $GIKMPR$ and $\triangle FJN$ are regular. The dashed line segments form 30° angles.



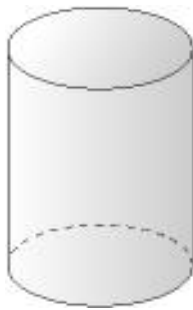
20. Find the image of point P after a rotation of 240° about point M .
21. Find the angle of rotation about O that maps \overline{JK} to \overline{FG} .
22. Find the degree of rotation about the spinner center that maps label i to label g .



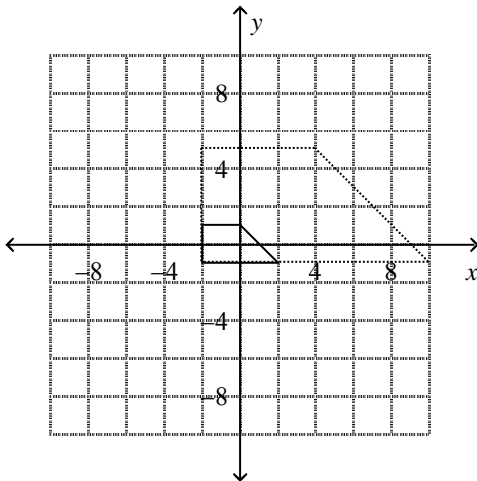
23. How many lines of symmetry does the figure have?



24. Tell whether the three-dimensional object has rotational symmetry about a line and/or reflectal symmetry in a plane.

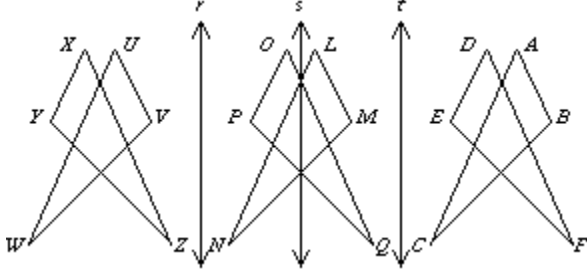


25. The dashed-lined figure is a dilation image of the solid-lined figure. Is the dilation an enlargement, or a reduction? What is the scale factor of the dilation?

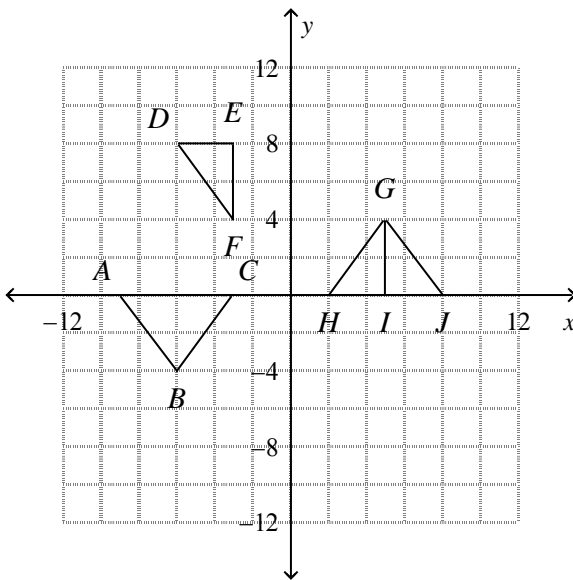


26. A blueprint for a house has a scale of 1 : 35. A wall in the blueprint is 3 in. What is the length of the actual wall?
27. A microscope shows you an image of an object that is 80 times the object's actual size. So the scale factor of the enlargement is 80. An insect has a body length of 7 millimeters. What is the body length of the insect under the microscope?

28. Name the translation image of $\triangle ABC$ after a reflection across line t and then a reflection across line r .



29. Identify $\triangle JIG \rightarrow \triangle DEF$ as a reflection, translation, rotation, or glide reflection. Find the reflection line, translation rule, center and angle of rotation, or glide translation rule and reflection line.



30. Katharine left her house and walked 2 blocks north and 3 blocks east to a friend's house. From there, she walked 3 blocks north and 4 blocks west to school for volleyball practice.
- If Katharine's house is at the origin, sketch the transformations of her route.
 - Describe where the school is in relation to Katharine's house.

Ch 9 SG Answer Section

SHORT ANSWER

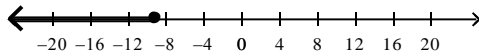
1. ANS:
1

OBJ: 2-4.1 To solve equations with variables on both sides

2. ANS:
 $p = 6$

OBJ: 2-4.1 To solve equations with variables on both sides

3. ANS:
 $x \leq -9$



OBJ: 3-2.1 To use addition or subtraction to solve inequalities

4. ANS:
 $x < -3$

OBJ: 3-4.1 To solve multi-step inequalities

5. ANS:
3.9 m

OBJ: 10-1.1 Find the area of parallelograms and triangles

6. ANS:
 $36\sqrt{3}$

OBJ: 10-1.1 Find the area of parallelograms and triangles

7. ANS:
28 ft; 0.4 min

OBJ: 8-2.2 Using 30° - 60° - 90° Triangles

8. ANS:
1.4 mi

OBJ: 8-5.1 Using Angles of Elevation and Depression

9. ANS:
13

OBJ: 2-4.1 To solve equations with variables on both sides

10. ANS:
 $\angle R$

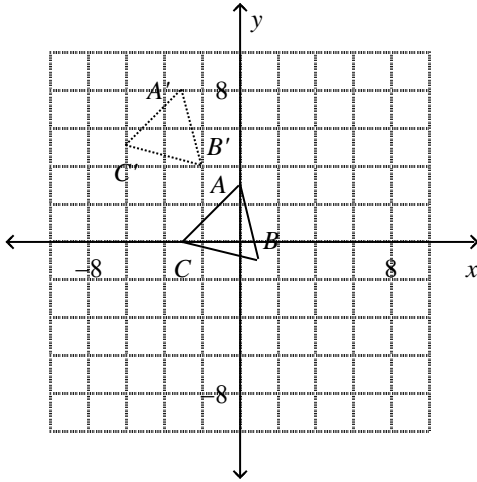
OBJ: 9-1.1 Identify isometries

11. ANS:

\overline{QR}

OBJ: 9-1.1 Identify isometries

12. ANS:



OBJ: 9-1.2 Find translation images of figures

13. ANS:

$$(x, y) \rightarrow (x + 8, y + 14)$$

OBJ: 9-1.2 Find translation images of figures

14. ANS:

7 units to the left and 7 units down

OBJ: 9-1.2 Find translation images of figures

15. ANS:

$$(x, y) \rightarrow (x - 6, y + 3)$$

OBJ: 9-1.2 Find translation images of figures

16. ANS:

$$(x, y) \rightarrow (x - 8, y - 4)$$

OBJ: 9-1.2 Find translation images of figures

17. ANS:

$$P'(-4, -7), Q'(-8, -7), R'(-3, 3)$$

OBJ: 9-2.1 Find reflection images of figures

18. ANS:

$$P'(-3, -8), Q'(-6, 4), R'(1, -1)$$

OBJ: 9-2.1 Find reflection images of figures

19. ANS:

$$(4, -9)$$

OBJ: 9-2.1 Find reflection images of figures

20. ANS:
K

OBJ: 9-3.1 Draw and identify rotation images of figures

21. ANS:
 120°

OBJ: 9-3.1 Draw and identify rotation images of figures

22. ANS:
 72°

OBJ: 9-3.1 Draw and identify rotation images of figures

23. ANS:
8

OBJ: 9-4.1 Identify the type of symmetry in a figure

24. ANS:
reflectional symmetry and rotational symmetry

OBJ: 9-4.1 Identify the type of symmetry in a figure

25. ANS:
3; enlargement

OBJ: 9-5.1 Understand dilation images of figures

26. ANS:
8.75 feet

OBJ: 9-5.1 Understand dilation images of figures

27. ANS:
560 millimeters

OBJ: 9-5.1 Understand dilation images of figures

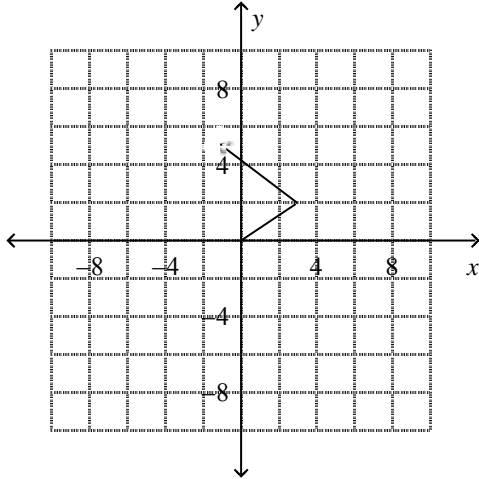
28. ANS:
 $\triangle UVW$

OBJ: 9-6.1 Find compositions of reflections, including glide reflections

29. ANS:
rotation; 180° about (1, 4)

OBJ: 9-6.2 Classify isometries

30. ANS:
a.



b. The school is 5 blocks north and 1 block west of Katharine's house.

OBJ: 9-1.2 Find translation images of figures