Chapter Review

1. If isometry S maps A to A' and B to B', then $\overline{AB}$ ___?___ $\overline{A'B'}$. **14–1**

2. If $f(x) = 3x$, find the image and preimage of 6.

3. **a.** If $S:(x, y) \rightarrow (2x, y - 2)$, find the image and preimage of (3, 3).
b. Is S an isometry?

4. Find the image of $(-7, 5)$ when reflected in (**a**) the x-axis, (**b**) the y-axis, and (**c**) the line $y = x$. **14–2**

5. Draw the line $y = 2x + 1$ and its image under reflection in the y-axis.

6. **a.** If translation $T:(5, 5) \rightarrow (7, 1)$, then $T:(x, y) \rightarrow$(___?___, ___?___) **14–3**
b. Is distance invariant under T?
c. Is angle measure invariant under T?
d. Is area invariant under T?

7. Find the image of $(7, -2)$ under the glide reflection that moves all points 5 units to the right and then reflects all points in the x-axis.

8. Plot the points $A(3, 2)$, $B(-1, 1)$, and $C(1, -3)$. Label the origin O. Draw $\triangle ABC$ and its images under (**a**) $\mathcal{R}_{O,\,90}$ and (**b**) H_O. **14–4**

9. Which of the given rotations are equal to $\mathcal{R}_{O,\,140}$?
a. $\mathcal{R}_{O,\,500}$ **b.** $\mathcal{R}_{O,\,-140}$ **c.** $\mathcal{R}_{O,\,-220}$

10. If O is the origin then the dilation $D_{O,\,2}:(3, -2) \rightarrow$ (___?___, ___?___). **14–5**

11. Find the image of (3, 1) under a dilation with center (0, 4) and scale factor $\frac{1}{3}$.

12. Find the image of (3, 1) under the following transformations: **14–6**
a. $R_x \circ R_y$ **b.** $R_y \circ H_O$ **c.** $R_x \circ \mathcal{R}_{O,\,-90}$

Complete.

13. If $T:(x, y) \rightarrow (x - 1, y + 6)$, then $T^{-1}:(x, y) \rightarrow$ (___?___, ___?___). **14–7**

14. The inverse of $D_{O,\,4}$ is $D_{?,?}$.

15. $R_j \circ R_j =$ ___?___ **16.** $\mathcal{R}_{O,\,75} \circ \mathcal{R}_{O,\,?} = I$

17. Does a scalene triangle have line symmetry? **14–8**

18. Does a rectangle have point symmetry?

19. Does a regular octagon have 90° rotational symmetry?

20. Name a figure that has 72° rotational symmetry.