9.1 Independent Practice

Personal Math Trainer

Online Assessment and Intervention

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7. The figure shows triangle *DEF*.

a. Graph the image of the triangle after the translation that maps point *D* to point *D′*.
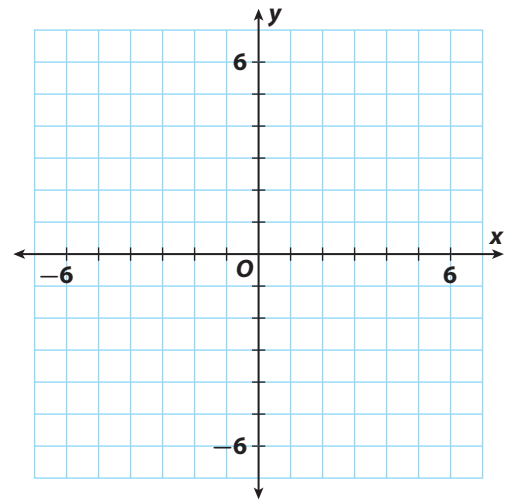
b. How would you describe the translation?

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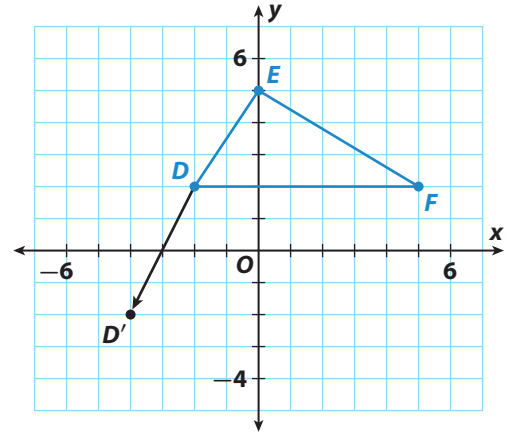
c. How does the image of triangle *DEF* compare with the preimage?

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8. a. Graph quadrilateral *KLMN* with vertices *K*(−3, 2), *L*(2, 2), *M*(0, −3), and *N*(−4, 0) on the coordinate grid.

b. On the same coordinate grid, graph the image of quadrilateral *KLMN* after a translation of 3 units to the right and 4 units up.

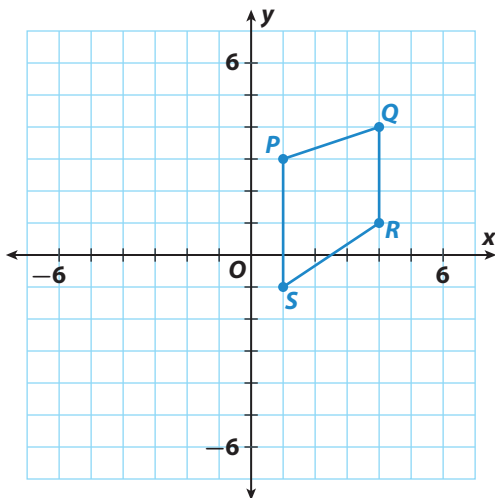**c.** Which side of the image is congruent to side $\overline{LM}$?
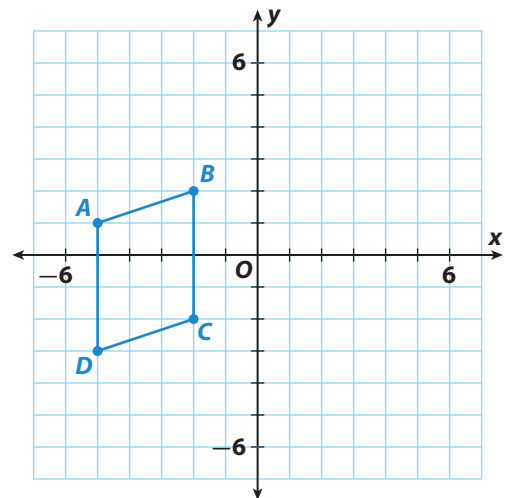
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Name three other pairs of congruent sides.

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Draw the image of the figure after each translation.

9. 4 units left and 2 units down

10. 5 units right and 3 units up

11. The figure shows the ascent of a hot air balloon. How would you describe the translation?

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12. Critical Thinking Is it possible that the orientation of a figure could change after it is translated? Explain.

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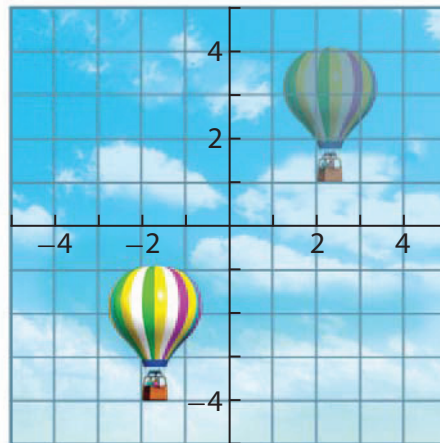

FOCUS ON HIGHER ORDER THINKING

13. a. Multistep Graph triangle XYZ with vertices $X(-2, -5)$, $Y(2, -2)$, and $Z(4, -4)$ on the coordinate grid.

b. On the same coordinate grid, graph and label triangle $X'Y'Z'$, the image of triangle XYZ after a translation of 3 units to the left and 6 units up.

c. Now graph and label triangle $X''Y''Z''$, the image of triangle $X'Y'Z'$ after a translation of 1 unit to the left and 2 units down.

d. Analyze Relationships How would you describe the translation that maps triangle XYZ onto triangle $X''Y''Z''$?

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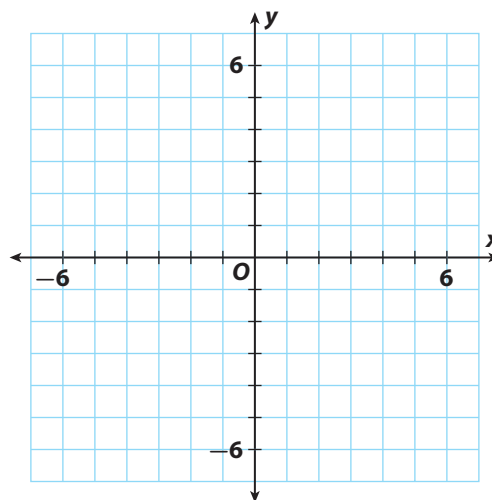
14. Critical Thinking The figure shows rectangle $P'Q'R'S'$, the image of rectangle $PQRS$ after a translation of 5 units to the right and 7 units up. Graph and label the preimage $PQRS$.

15. Communicate Mathematical Ideas Explain why the image of a figure after a translation is congruent to its preimage.

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