MIXED REVIEW of Problem Solving

STATE TEST PRACTICE
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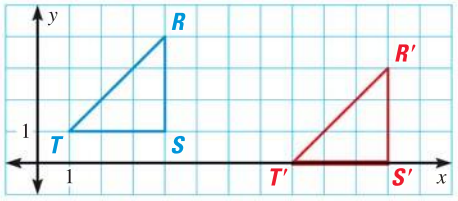
Lessons 9.1–9.3

1. MULTI-STEP PROBLEM $\triangle R'S'T'$ is the image of $\triangle RST$ after a translation.

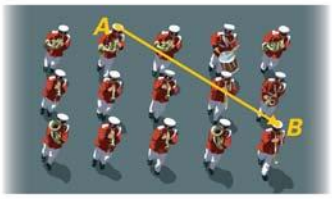


a. Write a rule for the translation.

b. *Verify* that the transformation is an isometry.

c. Suppose $\triangle R'S'T'$ is translated using the rule $(x, y) \rightarrow (x + 4, y - 2)$. What are the coordinates of the vertices of $\triangle R''S''T''$?

2. SHORT RESPONSE During a marching band routine, a band member moves directly from point A to point B. Write the component form of the vector $\overrightarrow{AB}$. *Explain* your answer.



3. SHORT RESPONSE Trace the picture below. Reflect the image in line m. How is the distance from X to line m related to the distance from X' to line m? Write the property that makes this true.

4. SHORT RESPONSE The endpoints of $\overline{AB}$ are $A(2, 4)$ and $B(4, 0)$. The endpoints of $\overline{CD}$ are $C(3, 3)$ and $D(7, -1)$. Is the transformation from $\overline{AB}$ to $\overline{CD}$ an isometry? *Explain*.

5. GRIDDED ANSWER The vertices of $\triangle FGH$ are $F(-4, 3)$, $G(3, -1)$, and $H(1, -2)$. The coordinates of F' are $(-1, 4)$ after a translation. What is the x-coordinate of G'?

6. OPEN-ENDED Draw a triangle in a coordinate plane. Reflect the triangle in an axis. Write the reflection matrix that would yield the same result.

7. EXTENDED RESPONSE Two cross-country teams submit equipment lists for a season. A pair of running shoes costs \$60, a pair of shorts costs \$18, and a shirt costs \$15.

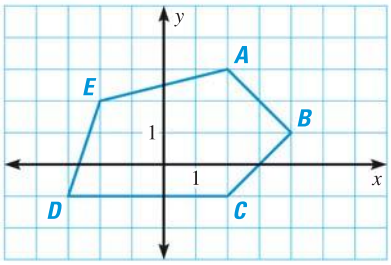
Women's Team	Men's Team
14 pairs of shoes	10 pairs of shoes
16 pairs of shorts	13 pairs of shorts
16 shirts	13 shirts

a. Use matrix multiplication to find the total cost of equipment for each team.

b. How much money will the teams need to raise if the school gives each team \$200?

c. Repeat parts (a) and (b) if a pair of shoes costs \$65 and a shirt costs \$10. Does the change in prices change which team needs to raise more money? *Explain*.

8. MULTI-STEP PROBLEM Use the polygon as the preimage.



a. Reflect the preimage in the y-axis.

b. Reflect the preimage in the x-axis.

c. *Compare* the order of vertices in the preimage with the order in each image.