MIXED REVIEW of Problem Solving

STATE TEST PRACTICE
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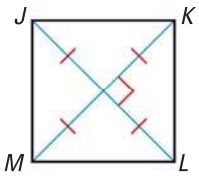
Lessons 8.4–8.6

1. **MULTI-STEP PROBLEM** In the photograph shown below, quadrilateral *ABCD* represents the front view of the roof.

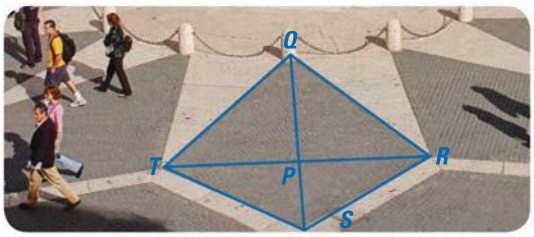
   a. *Explain* how you know that the shape of the roof is a trapezoid.

   b. Do you have enough information to determine that the roof is an isosceles trapezoid? *Explain* your reasoning.

2. **SHORT RESPONSE** Is enough information given in the diagram to show that quadrilateral *JKLM* is a square? *Explain* your reasoning.



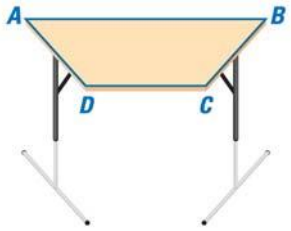
3. **EXTENDED RESPONSE** In the photograph, quadrilateral *QRST* is a kite.



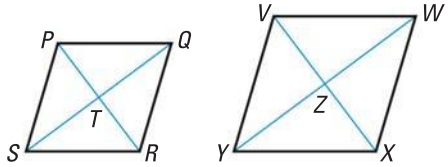
   a. If $m\angle TQR = 102°$ and $m\angle RST = 125°$, find $m\angle QTS$. *Explain* your reasoning.

   b. If $QS = 11$ ft, $TR = 14$ ft, and $\overline{TP} \cong \overline{QP} \cong \overline{RP}$, find QR, RS, ST, and TQ. Round your answers to the nearest foot. Show your work.

4. **GRIDDED ANSWER** The top of the table shown is shaped like an isosceles trapezoid. In *ABCD*, $AB = 48$ inches, $BC = 19$ inches, $CD = 24$ inches, and $DA = 19$ inches. Find the length (in inches) of the midsegment of *ABCD*.



5. **SHORT RESPONSE** Rhombus *PQRS* is similar to rhombus *VWXY*. In the diagram below, $QS = 32$, $QR = 20$, and $WZ = 20$. Find *WX*. *Explain* your reasoning.



6. **OPEN-ENDED** In quadrilateral *MNPQ*, $\overline{MP} \cong \overline{NQ}$.

   a. What types of quadrilaterals could *MNPQ* be? Use the most specific names. *Explain*.

   b. For each of your answers in part (a), tell what additional information would allow you to conclude that *MNPQ* is that type of quadrilateral. *Explain* your reasoning. (There may be more than one correct answer.)

7. **EXTENDED RESPONSE** Three of the vertices of quadrilateral *EFGH* are $E(0, 4)$, $F(2, 2)$, and $G(4, 4)$.

   a. Suppose that *EFGH* is a rhombus. Find the coordinates of vertex *H*. *Explain* why there is only one possible location for *H*.

   b. Suppose that *EFGH* is a convex kite. Show that there is more than one possible set of coordinates for vertex *H*. *Describe* what all the possible sets of coordinates have in common.