Whitebeard's Treasure

Whitebeard, the notorious pirate of the West Bay, buried treasure on Tiki Island over 200 years ago. Archeologists recently discovered a map showing the location of the treasure. The location has generated quite a bit of media attention, much to the dismay of the archeologists. In order to allow both the media and archeologists to work together, officials have decided to erect two fences around the location, allowing the media access to the site, yet allowing the archeologists room to work. One fence encloses the actual area where the archeologists will work. Another fence surrounds the enclosed dig area.

Descriptions of the fencing locations have been provided to the media so they may indicate accessible areas for their employees. Use the given information to draw and label a quadrilateral on graph paper indicating the location of the two fences.

1. Corners of the first fence are located at points A(11,3), B(3,-11), C(-13,-9) and D(-5,9). The media must stay within this fenced area. Connect the points in alphabetical order, and then join point D to Point A.

2. Find and label the midpoints of each segment of quadrilateral ABCD, showing all work. Label the midpoints of the segments as follows:

   $\overline{AB}$ has midpoint Q,
   $\overline{BC}$ has midpoint R,
   $\overline{CD}$ has midpoint S,
   $\overline{DA}$ has midpoint T.

3. Connect the four midpoints in alphabetical order to create a new quadrilateral QRST. This quadrilateral represents the fence surrounding the archeological dig site.

4. Quadrilateral ABCD was an ordinary quadrilateral, but QRST is a special one. Determine the special name for quadrilateral QRST, and justify your answer using coordinate geometry in two different ways.

"Whitebeard's Treasure" from Charles A. Dana Center at The University of Texas at Austin. (2013). Geometry Formative Assessments Through the Common Core. Austin, Texas.
This material accompanies a video-recorded lesson on Inside Mathematics (www.insidemathematics.org): 8th Grade Coordinate Geometry: Public Lesson.