

Name: _____

On the next page is a small part of the USGS topographic map of the Havasu Falls, Arizona, 7.5-minute quadrangle map.

1. Using a regular pencil, *lightly* draw where a stream might flow at the bottom of the stream valley that extends from the upper right to the lower left corner of the map area. This is simply a technique to quickly familiarize yourself with the map, allowing you to recognize the low points (and high points) on this topographic map. Which way would the water flow down that main drainage valley?

Answer: _____

2. Given the bar scale on the map, what is the fractional scale of the map? Hints: measure the bar scale to the nearest millimeter, and remember that 1 inch = 25.4 mm *exactly*.

Computation and answer:

3. In the upper center-left of the map is the map symbol for a vertical bed or intrusion, just below the word "dike 2". The map symbol is located on the southwest contact of a 100-foot-wide vertical dike that is younger than any other rock formation in the area. Using this information and the map scale, locate the SW and NE igneous contacts as they cross the topography and lightly color the dike using a red pencil.

4. In the lower center-left of the map is the map symbol for a horizontal bed, just above the word "shale". The lower contact of the horizontal shale bed is about 40 feet below where the symbol is located, and the upper contact is about 220 feet above. Using this information, locate the upper and lower contacts and lightly color the shale formation using another colored pencil.

5. The map trace of a thin inclined planar dike is shown as a blue curve labeled "dike 1". Carefully draft a correct strike-and-dip symbol in the box located along the dike, and use the map scale and appropriate trigonometry to estimate the dip angle of the dike. Add that dip angle to the strike-and-dip symbol. Determine the right-hand-rule strike of the dike, and add that strike azimuth to the appropriate end of the strike line. Express the strike azimuth and dip angle as integers, in degrees. Show your work, including a representation of the right triangle you used to solve for dip angle.

Computation, visualization sketch, and answer:

