Name: _____

On the next page is a small part of the USGS topographic map of the Horsetooth Reservoir, Colorado, 7.5-minute quadrangle map.

1. Using a regular pencil, *lightly* draw where a stream might flow at the bottom of the highest-order stream valley in 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. A gray band across the right side of the map marks the surface exposure of a shale unit with the same strike-and-dip as the map symbol just above the scale bar. How thick is that shale unit? (Recall that stratigraphic thickness is measured perpendicular to the upper and lower contact of that unit.)

Computation, visualization sketch, and answer:

4. The strike-and-dip symbol on the map documents the orientation of the lower contact of a tabular sedimentary unit. Carefully draft the trace of that planar contact as it intersects the topographic surface.

5. Does the lower contact of that tabular sedimentary unit "V" upstream or downstream? Explain why this is so.

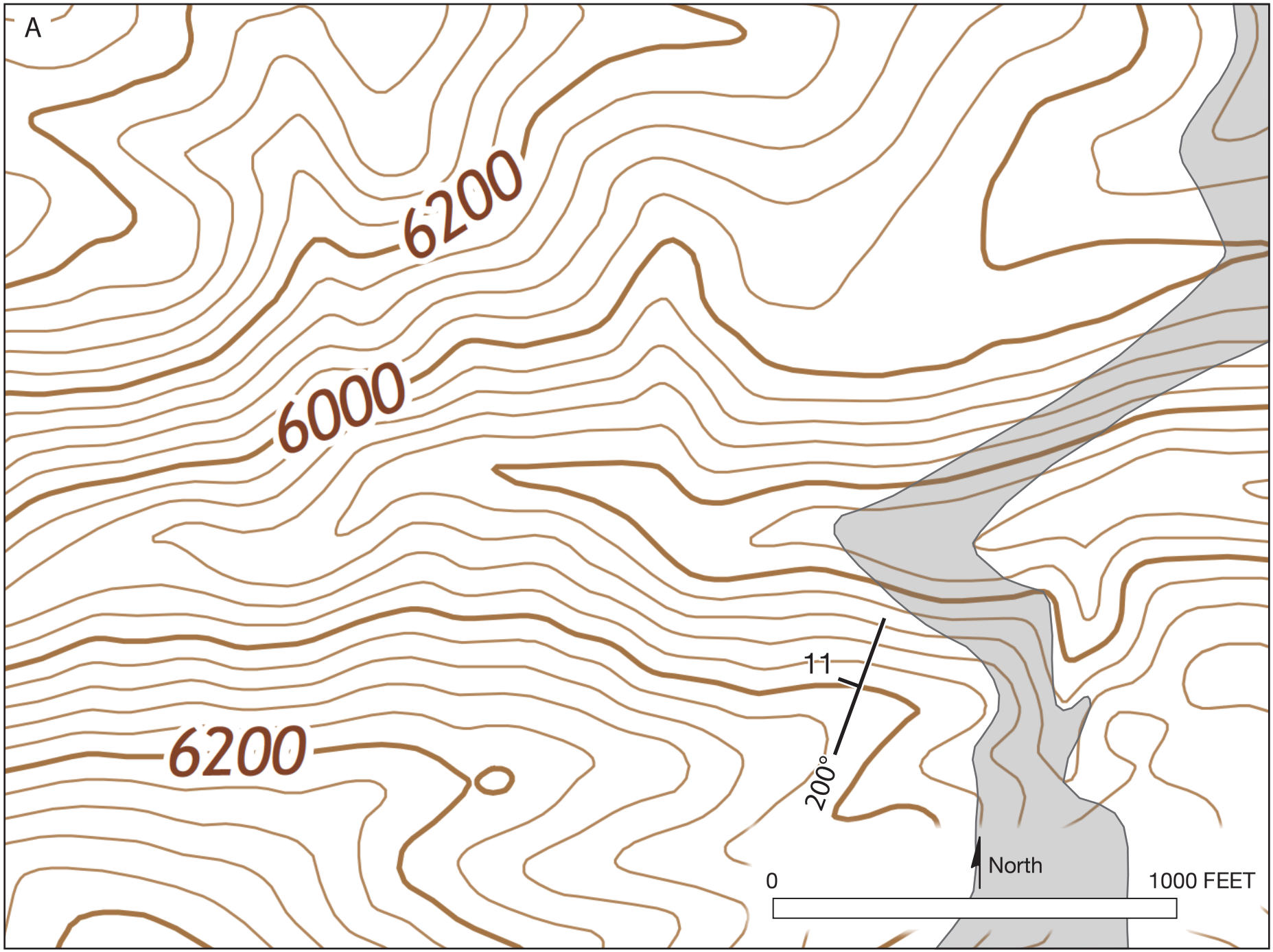
Answer in a complete sentence:

6. The sedimentary unit mentioned in the previous question has a stratigraphic thickness of 200 feet. What is its thickness as measured in meters? Remember: 1 inch = 2.54 centimeters *exactly*, and 1 foot = 12 inches.

Computation and answer:

7. Carefully draft the trace of the planar upper contact of that tabular sedimentary unit as it intersects the topographic surface.

Computation, visualization sketch, and answer:



Topographic contours from USGS topographic map of Horsetooth Reservoir 7.5 minute Quadrangle, Colorado, 2016
https://prd-tnm.s3.amazonaws.com/StagedProducts/Maps/USTopo/PDF/CO/CO_Horsetooth_Reservoir_20160901_TM_geo.pdf

thickness-topo.pdf