

Name _____



Martian Topography -- Answer Sheet

Part A: Volcanoes and Valleys

- 1) Approximate Martian latitude and longitude for Olympus Mons:

_____.

Approximate Martian latitude and range in longitude for Valles Marineris:

_____.

2) **Olympus Mons**

- a) Radius of Olympus Mons (show all calculations):

- b) Slope of the volcano (show all logic, including a diagram):

- c) Compare it to our national highway standard of 6% (about 3.5 degrees). Comment on your comparison by relating what it is like to drive up or down a 6% grade (slope), or basically the steepest hill you've ever driven (Queen Anne Counterbalance? Heading East downtown, from First to Second Avenue?).

3) **Valles Marineris**

a) Width of the valley (mention your criteria):

b) Compare the predicted view on Mars of the Valles Marineris to views of the Grand Canyon.

Part B: The north-south dichotomy

Northern hemisphere						Average count:	Number Density:
Southern hemisphere						Average count:	Number Density:
Comment on your results, including any that seem contrary to what you would expect.							
Conclusion:							
Your hypothesis as to why there is this dichotomy:							

Part C: High resolution images of Mars

1. (No response needed.)
2. Approximately how much of Mars' climate history—meaning how many years—is recorded in these layers?

3.

a. Geologic map of MOC2-234 (be sure to label):	b. Geologic map of _____ (identify image and label)

c. Name one similarity and one difference between these gullies on Mars and Mt. St. Helens:

d. Why are the features considered signs of recent flowing water?

e. What is the main problem with the "recent flowing water" hypothesis used to explain these features?

