

Differentiation Practice

1. Planet X is discovered and astrogeologists have determined that the planet has the following layers shown in the table. In the space to the right, draw a diagram showing what the interior of this planet will look like. Label each layer.

Planet X	
<i>Substance</i>	<i>Density</i>
Olivine	3.4 g/cm ³
Copper	8.9 g/cm ³
Carbon Dioxide	0.0003 g/cm ³
Feldspar	2.6 g/cm ³
Quartz	2.6 g/cm ³

2. Using the values for mass and radius given in this table, calculate the volume and density of the planets listed in the table. *Show all work on a separate piece of paper!*

Planet	Mass (g)	Radius (cm)	Volume (in cm³) $V = 4/3\pi r^3$	Density (g/cm³)
Mercury	3.3×10^{26}	2.44×10^8		
Venus	4.9×10^{27}	6.1×10^8		
Earth	6.0×10^{27}	6.4×10^8		
Mars	6.4×10^{26}	3.4×10^8		
Jupiter	1.9×10^{30}	7.1×10^9		
Saturn	5.7×10^{29}	6.0×10^9		
Uranus	8.7×10^{28}	2.6×10^9		
Neptune	1.0×10^{29}	2.5×10^9		
Pluto	1.3×10^{25}	1.2×10^8		

3. Which planets have densities most like Earth?
4. Why do you think some planets have densities like Earth and some do not?