LRO's First Image of Mare Nubium

This is one of the first images taken by LRO showing details in Mare Nubium. The width of the image is 700 meters (500 pixels).

Problem 1 - Use a millimeter ruler to determine the scale of the image in meters per millimeter, and meters per pixel.

Problem 2 – What is the diameter, in meters, of the smallest recognizable crater you can find?

Problem 3 – Suppose your house is 42 feet wide and 60 feet long, and its sits on a property that is 75 feet wide and 96 feet long. Draw two squares at the same pixel scale as the LRO image. (Assume 1 meter = 3 feet)

Answer Key

Problem 1 - Use a millimeter ruler to determine the scale of the image in meters per millimeter, and meters per pixel. Answer: Width = 153 millimeters so the scale is 700 meters/153 mm = 4.6 meters/mm, and 700 meters/500 pixels = 1.4 meters/pixel.

Problem 2 – What is the diameter, in meters, of the smallest recognizable crater you can find? Answer: Students should see craters as small as 0.5 millimeters or 0.5 mm x 4.6 m/mm = 2.3 meters.

Problem 3 – Suppose your house is 42 feet wide and 60 feet long, and its sits on a property that is 75 feet wide and 96 feet long. Draw two squares at the same pixel scale as the LRO image. Answer: First convert the feet into metric units. Three feet equals about 1 meter, so the yard measures 75 feet x 96 feet = 25 meters x 32 meters, and the house measures 7 meters x 20 meters. At the scale of the LRO image of 1.4 meters/pixel, the property is 18 pixels x 23 pixels, and the house measures 5 pixels x 14 pixels. See sketch below, and the comparison lunar image enlargement.