

Answer keys to selected questions in Lab #4

3) #6; #1 has clear, distinct rim, so weathering has not had as much time to work as it has with #6.

4) not really; no overlapping craters and no significant difference in weathering. Possible slight difference in #2 and #5 vs. #3 and #4

8) Region A, B, C, and D are highlands, maria, highlands, and maria, respectively. Note that **highlands** appear light in color due to their high silica content, while lunar **maria** are broad, basaltic lava plains that are rich in iron, making them appear darker than the silica-rich highlands.

11) The older the surface, the more craters there are, so the higher the surface density. Older surfaces have more time to accumulate impacts, etc., or similar answers.

14) The conflict: Lunar surface cannot be older than the solar system, universe, etc.

The discrepancy comes from we assuming that the cratering rate is constant over time, which is not necessarily true.

17)

1. [right]

2. Steps:

1. locate a feature clearly elevated or depressed.
2. use this to determine which direction the light comes from by the shadow cast.
3. use the direction of the light source to determine the elevation/depression of every other feature in the image again by the shadows cast.

19) One example is the long and thin 'rivers'. They are depressed feature.

21) Just some examples:

Category name	E or D?	Description	Example
Craters	D	Circular depressions	2,3,6,9
Mountain/ridge	E	long, linear elevations	5, 8
Valley, river, rille	D	long, linear depressions	4, 7
hill	E	circular elevations	1

21) Clear craters at top of image show light direction; shadow cast by canyon is on same side as within craters. So both depressed.

25) Processes differ. Pluto light surfaces younger v.s. Moon light surfaces older. What happens on Pluto is cryovolcanism, which is not the same as rock volcanism.