

Courtesy of your book

- 1) Blue light has higher frequency than red light. Thus, blue light has...
 - a) higher energy and shorter wavelength than red light.
 - b) higher energy and longer wavelength than red light.
 - c) lower energy and shorter wavelength than red light.
 - d) lower energy and longer wavelength than red light.

- 2) Some Nitrogen atoms have 7 neutrons and some have 8 neutrons, these two forms of Nitrogen are...
 - a) ions of each other.
 - b) isotopes of each other.
 - c) phases of each other.
 - d) different molecules.

- 3) Compared to its angular momentum when it is farthest from the Sun, Earth's angular momentum when it is nearest to the Sun is
 - a) greater
 - b) less
 - c) the same
 - d) always zero

- 4) In winter, Earth's axis points toward the north star. In the summer
 - a) the axis also points toward the north star
 - b) the axis points opposite the north star
 - c) the angle changes by 23.5°
 - d) the angle changes by 47°

5) For the our solar system $P^2 = a^3$ if you use years and AU. This is true based on Newtonian gravity.

Now... imagine you are in a strange new universe where gravity behaves differently so the aforementioned equation does not hold. You have taken the following measurements.

	Talaxia	Eden Prime	Mandalore	Romulus	Koon	Jakku
P (years)	2	8	18	32	72	
a (AU)	1	2	3	4		8

a) Figure out how period and semi-major axis are related in this new universe. (assume units work out so that you can write a simple proportion)

b) fill in the missing measurements.

c) describe what other measurements would be different in this universe.