

1. Describe the major contribution(s) of each of the major historical astronomers we discussed in class (Aristotle, Hipparchus, Ptolemy, Copernicus, Brahe/Kepler, Galileo, Newton).

2. Draw/label an EM wave in the space below.

2. Relating velocity, wavelength, and frequency.

a) Calculate the wavelength of an EM wave having a frequency of $3.76 \times 10^{14} \text{ s}^{-1}$.

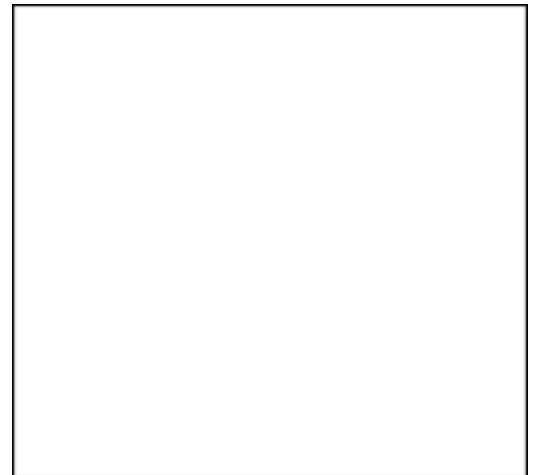
b) Which type of EMR carries the second highest energy? What does this mean about the frequency and wavelength of this type of wave?

3. Atomic spectra. Draw a Bohr atom with 5 orbits (rings) in the space to the right.

a) Draw an arrow showing the motion of an electron absorbing a photon of UV light and label it "A."

b) Draw an arrow showing the motion of an electron releasing red light and label it "B."

c) How are atomic spectra useful to astronomers?



4. Sketch an example of reflection, refraction, and diffraction in the space below.

5. Sketch diagram for a reflector and refractor telescope in the space below.

6. NASA has contacted you and asked for help designing a new telescope. They need your help weighing pros and cons of land vs space, reflector vs refractor, and which wavelength to choose. Advise them!

7. Why has NASA sent so many space probes around the solar system but so few missions with humans onboard?