

Astronomy 1143 Quiz 2 Review

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Light

1. What is light?
2. How is light created and what can light interact with?
3. How is the wavelength of light related to its frequency?
4. What are the units for frequency and wavelength?
5. List the electromagnetic spectrum from highest energy to lowest energy. Note that this is also the list from shortest wavelength to longest wavelength.
6. What wavelength range is visible light?
7. How does the energy of a photon relate to other properties of light?

Atoms and Spectroscopy

1. What subatomic particles make up the atom?
2. How many protons, electrons, and neutrons does a hydrogen atom have?
3. Can electrons be anywhere around the nucleus?
4. What happens when an atom emits light? What is the energy of that light?
5. What happens when an atom absorbs light? Can an atom absorb light of any energy?
6. What does an emission spectrum look like, in general, for a single element?
7. What does an absorption spectrum look like, in general, for a single element?
8. What are some of the most well-known emission and absorption series of lines of hydrogen, and what part of the electromagnetic spectrum are they in?
9. What can you learn from looking at the spectrum of a star?
10. What is a blackbody?

Doppler Effect

1. What causes the Doppler effect?
2. What kinds of waves exhibit the Doppler effect?
3. If a star has an emission line at a particular wavelength λ , will the observed wavelength be longer or shorter if the star moving away from us? What color will this emission line be shifted toward?

Our Universe

1. Is the universe expanding, contracting, or staying the same? How do we know this?
2. What is Hubble's Law?
3. Using Hubble's law, how can we determine the age of the universe?
4. What is the Cosmic Microwave Background?
5. How do we know there's dark matter?
6. What are the most abundant elements in the universe?

Relativity

1. What are the two postulates of relativity?
2. How is the energy of an object related to its mass?
3. What is the important idea in general relativity?
4. What are time dilation and space contraction?

Stars

1. What is a star?
2. What is the H-R Diagram?
3. How are the luminosity, radius, and temperature of a star related?
4. What other properties of a star increase when the star's mass increases?
5. What determines the color of a star?
6. How do we classify stars?
7. Which layer of a star is the part that we see?