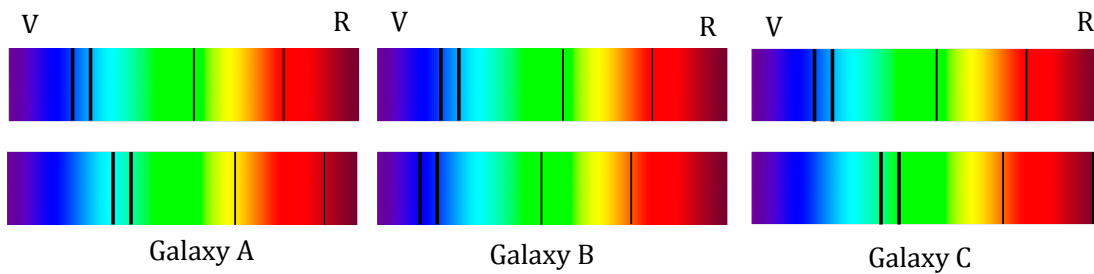


Practice questions for 3/6/17 Astronomy test

1. Describe the Doppler Effect as it pertains to light and the movement of celestial objects

2.

Look at the spectra below and attempt the questions. (In each case the top spectra represents our sun.)



- Which of the galaxies are moving towards us? _____
- Which of the galaxies are moving away from us? _____
- Which galaxy is moving away at the greatest speed? _____

3. What best describes the doppler effect?

- An apparent change in frequency of a wave due to the relative motion between a wave source and an observer
- When sound changes pitch
- When light changes color
- An apparent change in the amplitude of a wave due to the relative motion between a wave source and an observer.

4. When redshift occurs, the perceived frequency of the wave would...

- Increase
- Decrease
- Stay the same
- Make bird sounds

5. When blueshift occurs, the perceived WAVELENGTH of the wave would...

- Increase
- Decrease
- Stay the same
- Make frog sounds

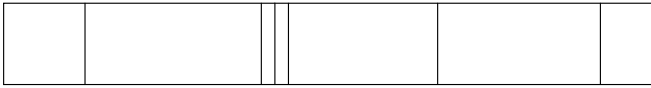
6.

Red shift/Blue shift Practice

Blue

Red

Nearby Star



Andromeda Galaxy



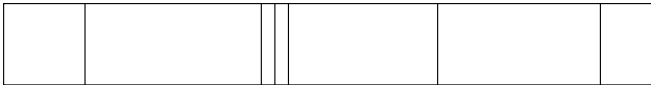
Bernard's Galaxy



Bear Galaxy



Venus



SR - 5



1. Which galaxy or planet is moving at the same speed as the nearby star?

2. What galaxies or planets are moving toward the nearby star?

3. What galaxies or planets are moving away from the nearby star?

4. Is the Andromeda galaxy red or blue shifted?

5. According to Hubble's law, which galaxy or planet is moving fastest away from the nearby star?

6. Which galaxy or planet is moving the slowest away from the nearby star?

7. Describe amplitude and wavelength as they pertain to light waves

8. The Doppler shift method for detecting the presence of exoplanets is best able to detect
 - A) massive planets near the star.
 - B) massive planets far from the star.
 - C) low-mass planets near the star.
 - D) low-mass planets far from the star.

9. How can we determine the distance between an exoplanet and its star?

10. How can we determine the size of an exoplanet relative to its star?

11. How can we determine the tilt of an exoplanet's orbit relative to us?

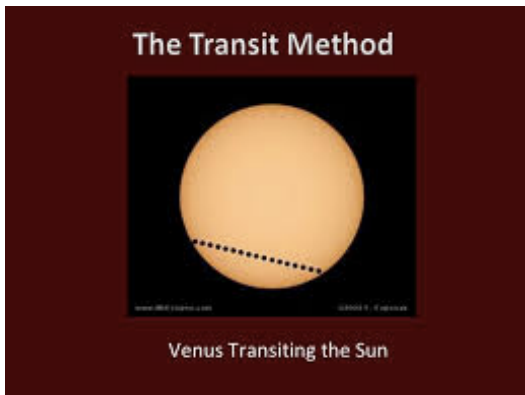
12. Describe the wobble method of exoplanet discovery, how we detect wobble and list the limitations of the method.

13. How could we detect the chemical make-up of an exoplanet's atmosphere?

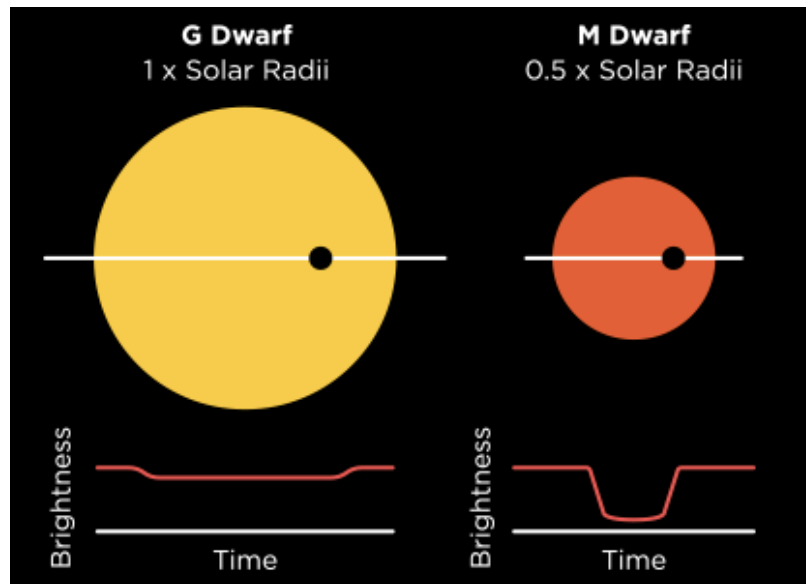
14. Which would be better to use from a land-based telescope: the wobble method or the transit method of exoplanet discovery? Why?

15. What is a brightness curve in the context of exoplanet discovery? What does it tell us?

16. Draw a brightness curve from the following picture of venus transiting in front of the sun and describe why you drew it that way:

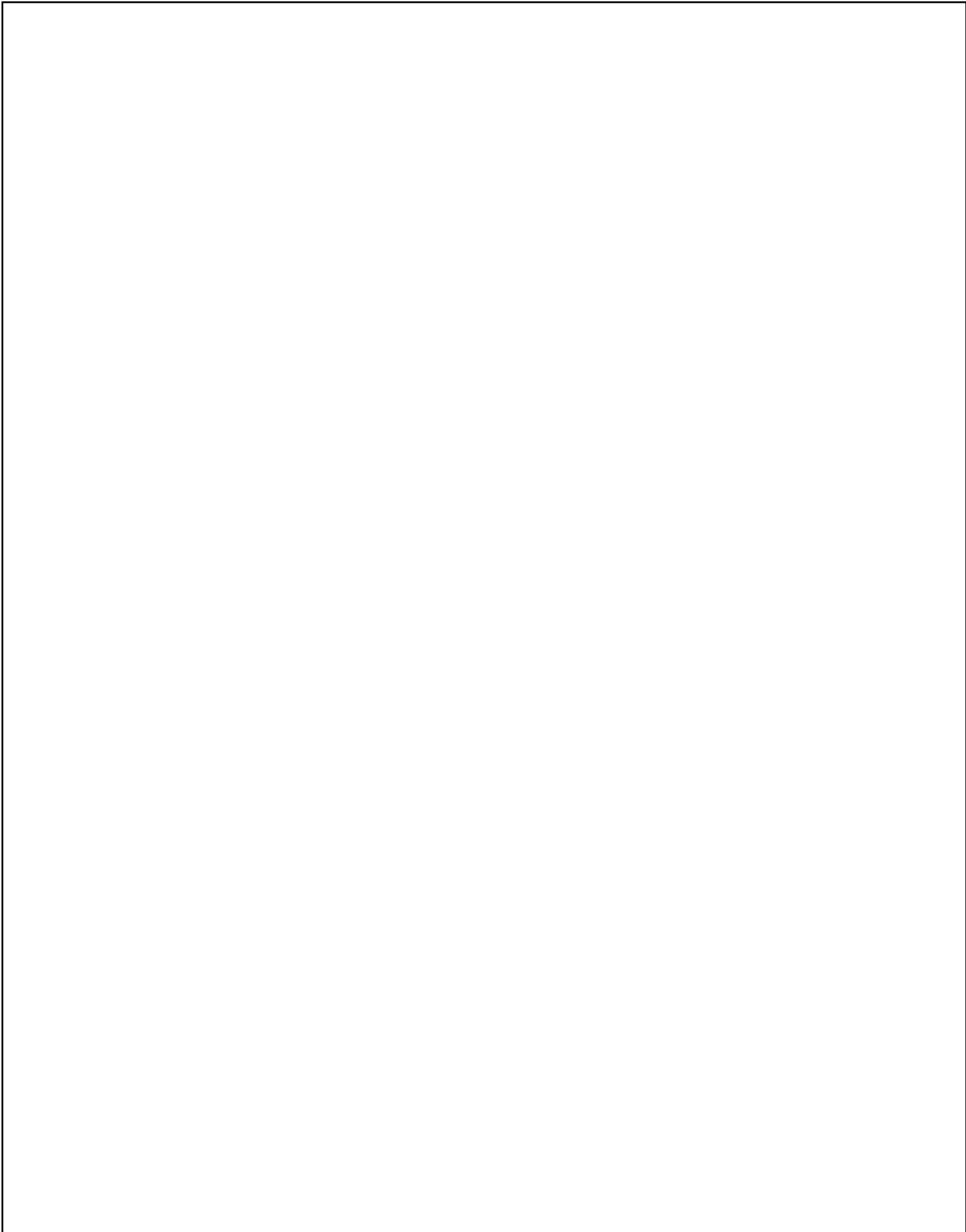


17. Two stars each have planets of the same size orbiting them. Explain why the brightness curves look different and how to find the relative size of the planet in each case.



18. Using the same diagram as for #17, assume that the brightness goes from 100% to 98% in the case of the G dwarf and from 100% to 85% in the case of the M dwarf. What is the radius of the planet relative to the G dwarf? Relative to the M dwarf?

19. Draw a model to describe the wobble method to someone who has never heard of exoplanets or the Doppler effect:



20. Describe how fusion is used to make energy (will not be a major focus on test)

Useful graphic:

