

Widener University

Fall 2004

ESSC 108E Introduction to Astronomy  
Prof. Augensen

Name

Key #2

Date

Week 4

QUIZ #4

Chap. 3a

Instructions: Write the letter of the best response in the blank space at left.

- C 1. Lens A has diameter 60 cm and lens B has diameter 30 cm. Lens A has how much more *light gathering power* than lens B?
- the same
  - 2 times
  - 4 times
  - 30 times
  - 60 times
- B 2. From the information given on lenses A and B in part 1., which one has the better *resolving power* (i.e., which can resolve smaller details)?
- lens A
  - lens B
  - Both have the same resolving power
- B 3. You are given two lenses P and Q with focal lengths 50 cm and 10 cm, respectively. If these lenses are used to construct a simple telescope, what must be its *magnifying power*?
- 2x
  - 5x
  - 10x
  - 20x
  - 50x
- B 4. Suppose you are given a converging lens for which you want to calculate the focal length. An object is placed  $o=10$  cm in front of the lens and an image is formed  $i=10$  cm behind the lens. What is the *focal length*  $f$  of this lens? Use  $f = 1/(1/o + 1/i)$ .  $f = \frac{10}{\frac{1}{10} + \frac{1}{10}} = \frac{100}{2} = 50$
- zero
  - 5 cm
  - 10 cm
  - 20 cm
- D 5. Which one of the following types of electromagnetic radiation can pass relatively freely through Earth's atmosphere?
- UV rays
  - x-rays
  - gamma rays
  - visible rays (light)
- B 6. On a warm, tranquil summer night when the sky is hazy and stars do not twinkle, the seeing is most likely to be \_\_\_\_\_ and the transparency \_\_\_\_\_.  
a) good, good b) good, poor c) poor, good d) poor, poor