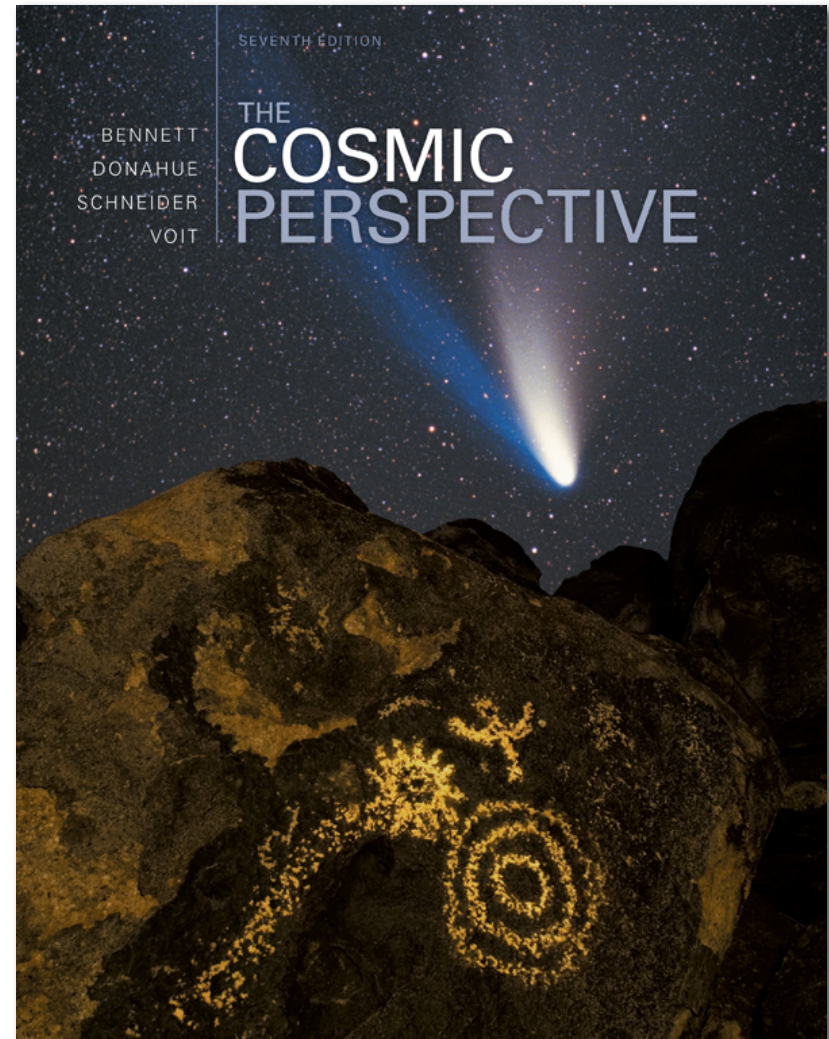


The Cosmic Perspective

Seventh Edition

Telescopes: Portals of Discovery



A lens forms an image in

- a) a reflecting telescope.
- b) a refracting telescope.
- c) your eye.
- d) A and C
- e) B and C

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A mirror forms an image in

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A mirror forms an image in

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What are the primary reasons for making telescopes larger?

- a) making things look larger
- b) seeing smaller details
- c) collecting more light to make faint objects look brighter
- d) A and B
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What does *better angular resolution* mean?

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- b) things look smaller
- c) you can see smaller details
- d) you can see fainter objects
- e) none of the above



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What advantages come from putting a telescope in space?

- a) all wavelengths can be seen, even those that don't penetrate Earth's atmosphere
- b) images may be sharper, without moving air to blur them
- c) you are closer to the stars, for a better view
- d) all of the above
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The largest optical telescopes are designed to have

- a) high magnification, large collecting area, and high angular resolution.
- b) high magnification, large collecting area, and low angular resolution.
- c) low magnification, large collecting area, and low angular resolution.
- d) large collecting area and high angular resolution-the magnification is of secondary importance.
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New technologies will soon allow astronomers to use X-ray telescopes on Earth's surface.

- a) Yes, from the highest mountain tops such as Mauna Kea, Hawaii.
- b) Yes, but the resolution will be lower than from space.
- c) No, X-rays cannot be focused because of the blurring effect of the atmosphere.
- d) No, X-rays are absorbed by the atmosphere and don't reach Earth's surface.
- e) No, no such technology exists.

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Chapter 6

Thanks to interferometry, a properly spaced set of 10-meter radio telescopes can achieve the angular resolution of a single, 100-kilometer radio telescope.

- a) Yes, but with much lower sensitivity than a single, 100-kilometer telescope.
- b) Yes, and the resulting interferometer will have exactly the same properties as a single, 100-kilometer telescope.
- c) Yes in principle, but such an interferometer has never been constructed.
- d) No, interferometry only works over much smaller distances.
- e) No, the blurring effects of Earth's atmosphere limit the achievable angular resolution.

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Which of the following is NOT an instrument typically attached to the focal plane of a large, research-grade telescope?

- a) An eyepiece lens.
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