

QUADRATIC RELATIONS AND CONIC SECTIONS

► *What shape does a telescope mirror have?*



CHAPTER

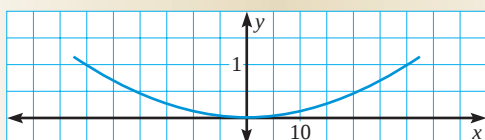
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APPLICATION: Telescopes

Using powerful telescopes like the Hubble telescope, astronomers have discovered planets that exist outside our solar system. By examining the wobble in a star's motion, astronomers can detect the presence of one or more planets orbiting that star. The challenge is to see the planets, but that would require a telescope with a mirror 100 meters in diameter, 10 times larger than any existing telescope.

Think & Discuss

The diagram shows a cross section of a mirror from a telescope at the Big Bear Solar Observatory in California. An equation for the surface of the mirror, based on the coordinate system shown, is $y = \frac{x^2}{1040}$ where x and y are measured in centimeters.



1. What shape is the cross section of the mirror?
2. The mirror has a diameter of 65 cm. What is the depth of the mirror? How did you get your answer?

Learn More About It

In Exercise 67 on p. 630 you will use your knowledge of conic sections to determine what shape a telescope's mirrors have.



APPLICATION LINK Visit www.mcdougallittell.com for more information about telescopes.

