

57. **MULTI-STEP PROBLEM** The parabolic antenna used by a television station to transmit is 146 inches in diameter. Its focus is 48 inches from the vertex.
- Sketch the antenna twice: once opening upward and once opening left.
 - Use your sketches from part (a) to write two equations for the antenna's cross section: one of the form $x^2 = 4py$ and one of the form $y^2 = 4px$.
 - How deep is the antenna's dish? Does it matter which equation from part (b) you use to find your answer? *Explain.*

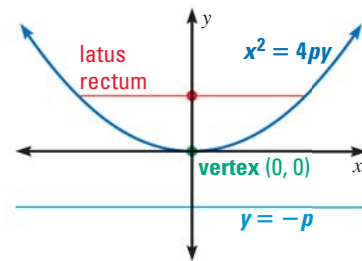
58. **RADIO TELESCOPES** The Very Large Array in New Mexico consists of 27 radio telescopes. For each parabolic telescope dish, the diameter is 25 meters and the distance between the vertex and focus is 0.36 times the diameter. Write an equation for the cross section of a dish opening upward with its vertex at the origin. How deep is each dish?

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59. **TAKS REASONING** Searchlights use parabolic reflectors to project their beams. The cross section of a 9.5-inch-deep searchlight reflector has equation $x^2 = 10.5y$.
- How wide is the beam of light projected from the searchlight's reflector?
 - Write an equation for the cross section of a reflector that has the same depth as the original reflector, but which projects a wider beam. *Explain* how you found your answer. How wide is the new reflector's beam?
 - Repeat part (b) for a beam narrower than the original.



60. **CHALLENGE** The *latus rectum* of a parabola is the line segment that is parallel to the directrix, passes through the focus, and has endpoints that lie on the parabola. Find the length in terms of p of the latus rectum of a parabola with equation $x^2 = 4py$.



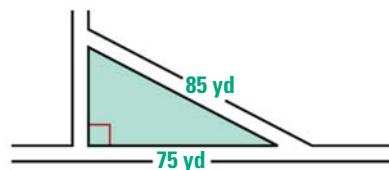
 **MIXED REVIEW FOR TAKS** **TAKS PRACTICE** at classzone.com

REVIEW

TAKS Preparation
p. 324;
TAKS Workbook

61. **TAKS PRACTICE** The figure shows a triangular city park. What is the perimeter of the park? **TAKS Obj. 8**

- (A) 170 yd (B) 190 yd
(C) 200 yd (D) 273 yd



62. **TAKS PRACTICE** Sarah has 9 points less than she needs to make a grade of A in her mathematics course. Her point total for the course is 423 points. How many points are possible in the course? (Assume she needs 90% of the total possible points for an A.) **TAKS Obj. 9**

- (F) 460 (G) 470 (H) 480 (J) 490

REVIEW

TAKS Preparation
p. 146;
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