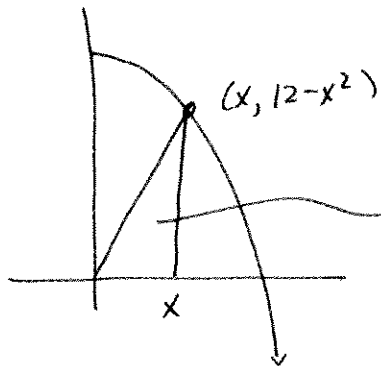


R. Bruner  
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A right triangle has one vertex at the origin, one on the positive  $x$ -axis, and the third directly above the second, on the curve  $y = 12 - x^2$ . Find the maximum area such a triangle can have.



$$\text{Area} = \frac{1}{2} x (12 - x^2) = 6x - \frac{x^3}{2}$$

$$\text{Area}' = 6 - \frac{3x^2}{2} = 0$$

$$12 = 3x^2$$

$$4 = x^2$$

$$2 = x$$

$$\text{Area} = \frac{1}{2} (2) (12 - 4) = 8$$