

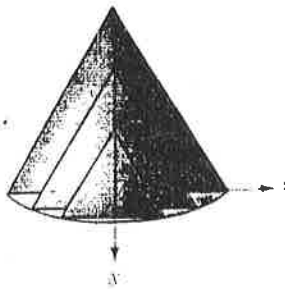
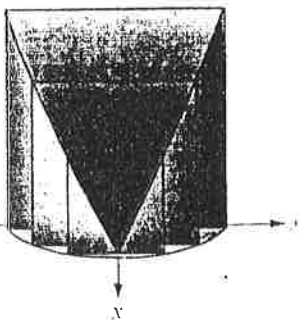
MAXMIN #3

10. For a box to be mailed by parcel post, its length plus its girth must be no more than 84 inches. What are the dimensions of the rectangular box of largest volume that can be sent by parcel post? (Use the fact that the square has largest area of all the rectangles with the same perimeter.)
11. A cylindrical can with no top is to be made from 12π square inches of tin. What should the dimensions of the can be to give it maximum volume?
12. Find the dimensions of the right circular cylinder of greatest volume inscribed in a right circular cone of radius 10 inches and height 24 inches.
13. What is the rectangle of largest area that can be inscribed in a circle of radius r ?

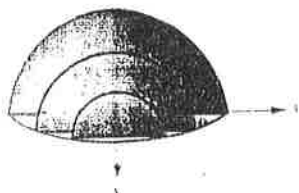
Cross-Sectional Area-vol

47. Find the volume of the solid whose base is bounded by the circle $x^2 + y^2 = 4$, with the indicated cross sections taken perpendicular to the x -axis.

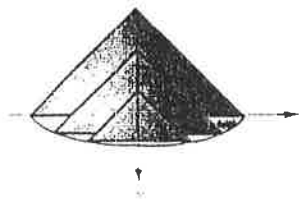
- (a) squares (b) equilateral triangles



- (c) semicircles

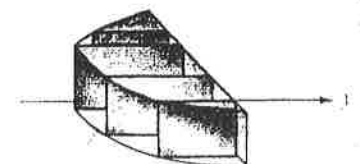
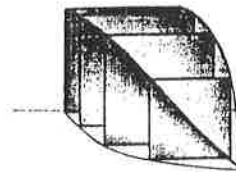


- (d) isosceles right triangles

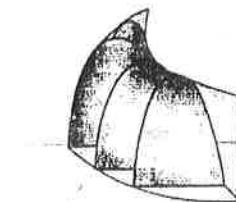


48. Find the volume of the solid whose base is bounded by the graphs of $y = x + 1$ and $y = x^2 - 1$, with the indicated cross sections taken perpendicular to the x -axis.

- (a) squares (b) rectangles of height 1



- (c) semiellipses of height 2 ($A = \pi ab$)



- (d) equilateral triangles

