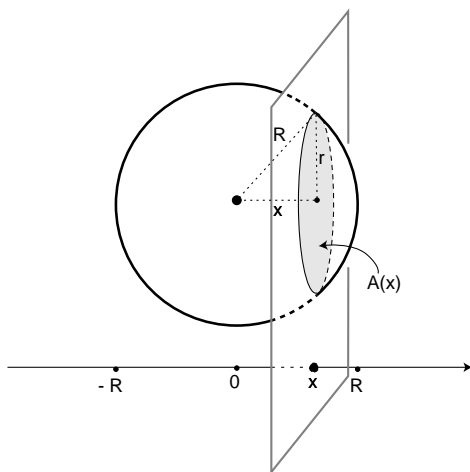# QUIZ 1   **Time: 15min**

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1. Use cavalieri's principle to compute the volume of a sphere of radius R. (*Hints*: (i) Recall Cavalieri's principle: $V = \int_a^b A(x)\,dx$, (ii) write a

formula for $A(x)$ in terms of r (look at the above figure), (iii) write r in terms of R and x, and (iv) integrate.)

2 (Bonus). Repeat the previous problem for a right circular cone with height h and base radius R.

First problem is worth 10 points, and so is the quiz; however, you may get up to 5 extra points for the second problem.