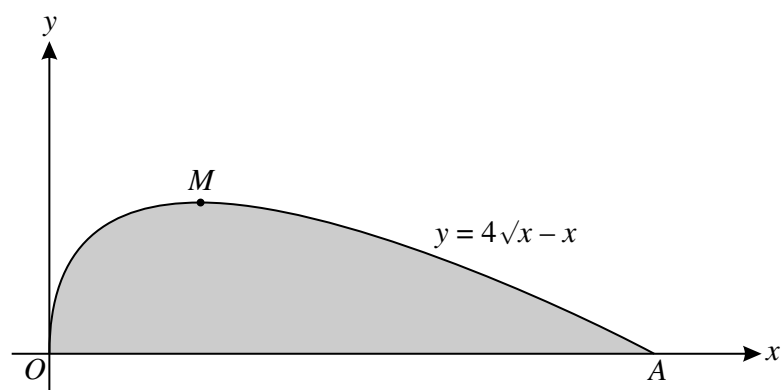**11**

The diagram shows part of the curve $y = 4\sqrt{x} - x$. The curve has a maximum point at M and meets the x-axis at O and A.

  (i) Find the coordinates of A and M. [5]

  (ii) Find the volume obtained when the shaded region is rotated through $360°$ about the x-axis, giving your answer in terms of π. [6]