

9.

$$f(x) = 2x^{\frac{1}{3}} + x^{-\frac{2}{3}} \quad x > 0$$

The finite region bounded by the curve $y = f(x)$, the line $x = \frac{1}{8}$, the x -axis and the line $x = 8$ is rotated through θ radians about the x -axis to form a solid of revolution.

Given that the volume of the solid formed is $\frac{461}{2}$ units cubed, use algebraic integration to find the angle θ through which the region is rotated.

(8)