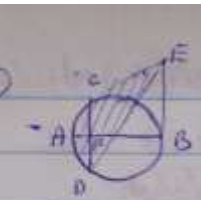
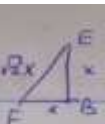
3.67 ⓐ




$AF \cdot FB = OF \cdot FC$

$x(2R-x) = OF^2$

$OF = \sqrt{x(2R-x)}$

$DC = 2DF$

$S_{DCE} = \frac{DC \cdot EF}{2} = \frac{2\sqrt{x(2R-x)} \cdot x}{2} = \sqrt{2x^3(2R-x)} = \sqrt{4Rx^3 - 2x^4}$

$S' = \frac{12Rx^2 - 8x^3}{2\sqrt{4Rx^3 - 2x^4}} \rightarrow 4x^2(3R-2x) = 0 \rightarrow x = 1.5R$

$\frac{S' \geq 0}{1.5R}$

ⓑ $V = \frac{1}{3} BE \cdot S_{DCB} = \frac{1}{3} x \cdot \frac{2\sqrt{x(2R-x)} \cdot x}{2} = \frac{\sqrt{x^3(2R-x)}}{3} = \frac{\sqrt{2Rx^3 - x^6}}{3}$

$V' = \frac{10Rx^4 - 6x^5}{6\sqrt{2Rx^3 - x^6}} \rightarrow 2x^4(5R-3x) = 0 \rightarrow x = \frac{5R}{3}$

$\frac{V' \geq 0}{\frac{5R}{3}}$