

$$= \frac{4\pi \left( r^3 - \frac{500}{\pi} \right)}{r^2}$$

(131)

|         |     |            |                             |            |
|---------|-----|------------|-----------------------------|------------|
| $r$     | $0$ |            | $\sqrt[3]{\frac{500}{\pi}}$ |            |
| $A'(r)$ | $X$ | $-$        | $0$                         | $+$        |
| $A(r)$  | $X$ | $\searrow$ | $\uparrow$                  | $\nearrow$ |

mini

When  $r = \sqrt[3]{\frac{500}{\pi}}$

and hence

$$h = \frac{1000}{\pi r^2} = \sqrt[3]{\frac{4000}{\pi}}$$

the surface area  $A$  is mini.  
(and hence the cost.)