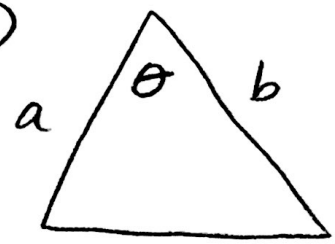
(15)



$A = \frac{1}{2}ab\sin\theta$

Treat a & b as constants

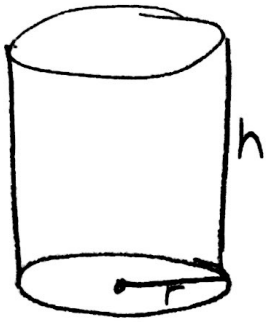
$A' = \frac{1}{2}ab\cos\theta = 0$

when $\theta = \pi/2$, $A' = 0$

regardless of a & b!

$\theta = \pi/2$

(16)



$V = \pi r^2 h = 1000 \Rightarrow h = \frac{1000}{\pi r^2}$

$SA = \pi r^2 + 2\pi r h$

$= \pi r^2 + 2\pi r\left(\frac{1000}{\pi r^2}\right)$

$SA = \pi r^2 + \frac{2000}{r}$

$SA' = 2\pi r - \frac{2000}{r^2} = 0$

$\frac{2\pi r^3 - 2000}{r^2} = 0$

$r^3 = \frac{2000}{2\pi}$

$r = \sqrt[3]{\frac{1000}{\pi}}$

$r \approx 6.8278$

$SA'' = 2\pi + \frac{4000}{r^3}$

$S''(6.8) > 0 \Rightarrow$ Minimum!

$r \approx 6.828$ cm
$h \approx 6.828$ cm