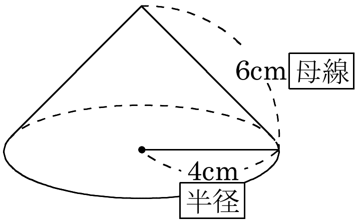
図形NO16　円錐の側面積・表面積・中心角

$\boxed{\text{表面積}}$ …立体のすべての面の面積の和

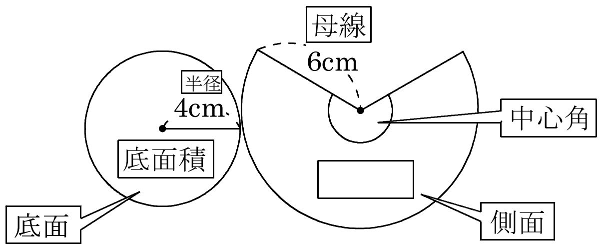
$\boxed{\text{円錐の表面積}} = \boxed{\text{側面積}} + \boxed{\text{底面積}}$

$\boxed{\text{円錐の側面積}} = \boxed{\text{母線}} \times \boxed{\text{半径}} \times \boxed{\pi}$

$\boxed{\text{側面の中心角}} = \boxed{\dfrac{\text{半径}}{\text{母線}}} \times \boxed{360}$



見取り図



展開図

$\boxed{\text{円錐の側面積}} = \overset{\boxed{\text{母線}}}{6} \times \overset{\boxed{\text{半径}}}{4} \times \overset{\boxed{\pi}}{\pi} = 24\pi\ \text{cm}^2$

$\boxed{\text{円錐の底面積}} = 4 \times 4 \times \pi = 16\pi\ \text{cm}^2$

$\boxed{\text{円錐の表面積}} = \overset{\boxed{\text{側面積}}}{24\pi} + \overset{\boxed{\text{底面積}}}{16\pi} = 40\pi\ \text{cm}^2$

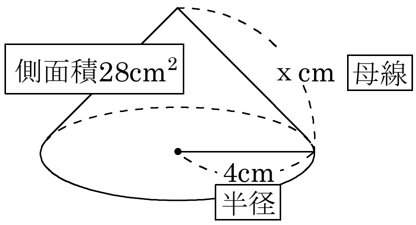
$$\boxed{\text{側面の中心角}} = \frac{4\ \boxed{\text{半径}}}{6\ \boxed{\text{母線}}} \times 360$$

$$= \frac{2}{3} \times 360$$

$$= \frac{2 \times \cancel{360}^{120}}{\cancel{3}}$$

$$= 240^\circ$$

応用問題



円錐の側面積が$28\pi\ \text{cm}^2$のとき，母線の長さを求めよ。

$\overset{\boxed{\text{母線}}}{x} \times \overset{\boxed{\text{半径}}}{4} \times \overset{\boxed{\pi}}{\pi} = \overset{\boxed{\text{側面積}}}{28\pi\ \text{cm}^2}$

$$\frac{x \times \cancel{4}^{1} \times \cancel{\pi}}{{}_{1}\cancel{4} \times \cancel{\pi}} = \frac{\overset{7}{\cancel{28}}\,\cancel{\pi}}{{}_{1}\cancel{4} \times \cancel{\pi}}$$

$$x = 7$$