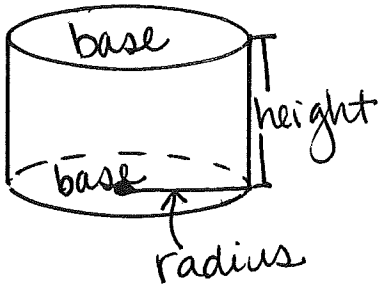
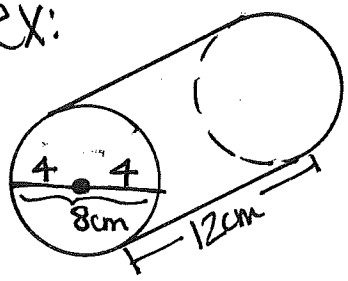
12-3 Surface Area of Cylinders



$LA = \cancel{P}h$
circumference

$LA = 2\pi rh$

ex:



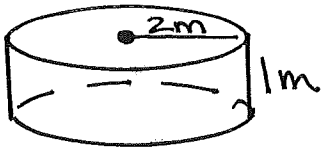
Find the lateral area.

$LA = 2\pi rh$
$= 2\pi(4)(12)$
$= 96\pi$
$= 301.6\ cm^2$

Surface Area

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

ex:



$SA = 2\pi(2)(1) + 2\pi(2)^2$
$= 12.6 + 25.1$
$= \boxed{37.7\ m^2}$

6m

ex: The surface area of a cylinder is 603.2 m^2 and the height is 10m. Find the radius of the base.

$$SA = 2\pi rh + 2\pi r^2$$
$$603.2 = 2\pi r(10) + 2\pi r^2$$
$$\frac{603.2}{(2\pi)} = \frac{20\pi r}{2\pi} + \frac{2\pi r^2}{2\pi}$$

$$96 = 10r + r^2$$
$$-96 \qquad\qquad -96$$
$$0 = r^2 + 10r - 96$$

2,48
3,32
4,24
6,16

$-96r^2$, $16r$, $-6r$, $+10r$

	r	16
r	r^2	16r
-6	-6r	-96

$$(r+16)(r-6) = 0$$

$r+16=0$ $\quad$ $r-6=0$
$-16\ -16$ $\quad$ $+6\ +6$

$r = -16m$ $\quad$ $r = 6m$