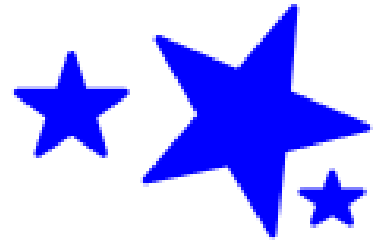
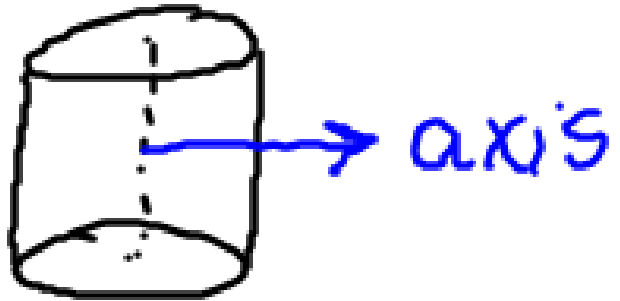
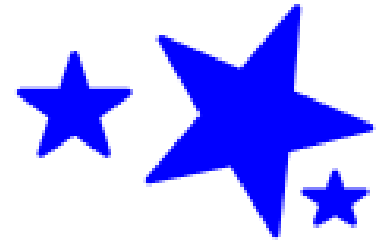


12 - 4

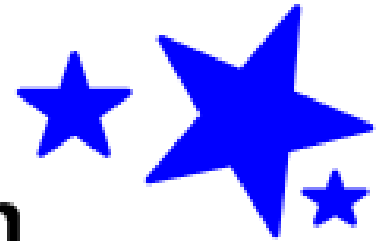
Surface Area of Cylinders



Lateral Area: $2\pi rh$



Ex: Find the lateral area of a cylinder with a radius of 3 in and a height of 6 in.



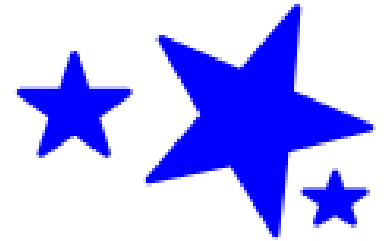
$$2\pi r h$$

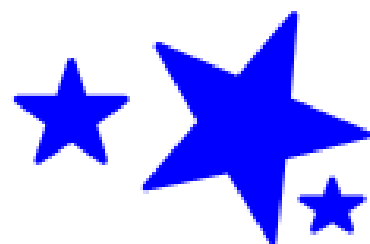
$$2 \cdot \pi \cdot 3 \cdot 6$$

$$36\pi$$

$$113.1 \text{ in}^2$$

Surface Area: $2\pi rh + 2\pi r^2$





Ex: Find the surface area of a cylinder with a diameter of $(r=5)$ 10 cm and a height of 14 cm.

$$2\pi rh + 2\pi r^2$$
$$2 \cdot \pi \cdot 5 \cdot 14 + 2 \cdot \pi \cdot 5^2$$

$$140\pi + 50\pi$$

$$190\pi$$

$$596.9 \text{ cm}^2$$

Ex: Find the diameter of a cylinder with a surface area of $128\pi \text{ cm}^2$ and a height of 12 cm.



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

$$\frac{128\pi}{2\pi} = \frac{2\pi \cdot r \cdot 12}{2\pi} + \frac{2\pi r^2}{2\pi}$$

$$64 = 12r + r^2$$

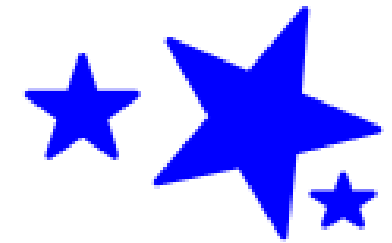
~~-64~~

$$0 = r^2 + 12r - 64$$

$$0 = (r+16)(r-4)$$

$$r = \cancel{16} \quad r = 4$$

$$d = 8 \text{ cm}$$



Homework:

12 - 4 WS