# D: Surface Area of Cylinders
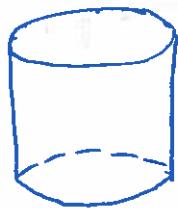
Formulas you will use:

$$A_o = \pi r^2 \qquad C = \pi d$$

$$r = \frac{d}{2} \qquad \text{-or-}$$

$$C = 2\pi r$$

Examples:

1. Find the surface area to the nearest tenth.

a)

38cm

d = 5cm

d = 5cm

×2

38cm

$C = \pi d$
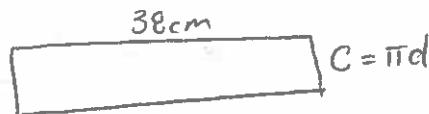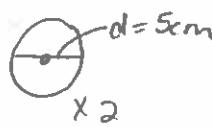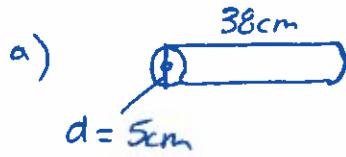
$$SA = 2A_o + A_{\square}$$

1st BEDMAS
$$= 2\pi r^2 + lw \qquad \text{* width is the circumference} \qquad C = \pi d$$

$$= 2(3.14)(2.5)^2 + (38)(15.7) \qquad\qquad\qquad = (3.14)(5)$$

$$= 2(3.14)(6.25) + (38 \times 15.7) \qquad r = \frac{d}{2} \qquad\qquad = 15.7$$

$$= 39.25 + 596.6 \qquad\qquad = \frac{5}{2}$$

$$\qquad\qquad\qquad = 2.5$$

$$= 635.85 \quad \text{round to tenth}$$

$$= 635.9 cm^2$$

b)

10cm

5cm

d = 10cm

×2

$C = \pi d$

5cm
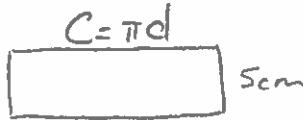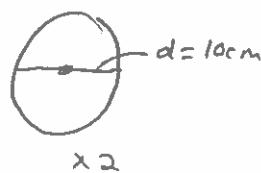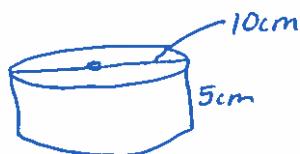
$$SA = 2A_o + A_{\square}$$

$$= 2\pi r^2 + lw \qquad \text{* length is the circumference} \qquad C = \pi d$$

1st BEDMAS
$$= (3.14)(10)$$

$$= 2(3.14)(5)^2 + (31.4)(5) \qquad r = \frac{d}{2} \qquad = 31.4 cm$$

$$= 2(3.14)(25) + (31.4)(5) \qquad\qquad = \frac{10}{2}$$

$$= 157 + 157 \qquad\qquad = 5$$

$$= 314.0 cm^2 \quad \text{*nearest tenth}$$

2. If the following cylinder needs to be covered with paper, except for the bottom, and the paper does not overlap, how much paper is needed?

84cm

64cm

84cm

*only 1 bk bottom isn't covered

64cm

$C = \pi d$
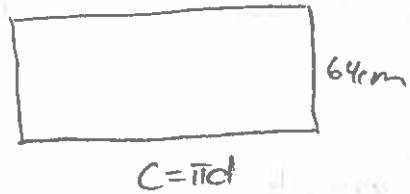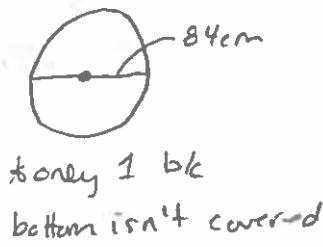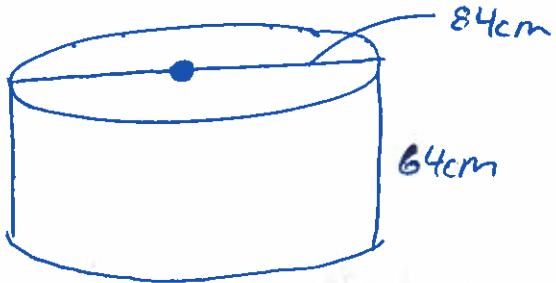
$SA = A_o + A_\square$ * only 1 A_o bk no bottom.

$= \pi r^2 + lw$ * length is circumference

$= (3.14)(42)^2 + (263.76 \times 64)$ $r = \dfrac{d}{2}$

$= (3.14 \times 1764) + (263.76)(64) = \dfrac{84}{2}$

$= 5538.96 + 16880.64$ $= 42$

$= 22\,419.6 \text{cm}^2$ * Do not round blc you are not asked to.

$C = \pi d$

$= (3.14 \times 84)$

$= 263.76$

Assignment Pg. 186 # 4-6, 8-10