

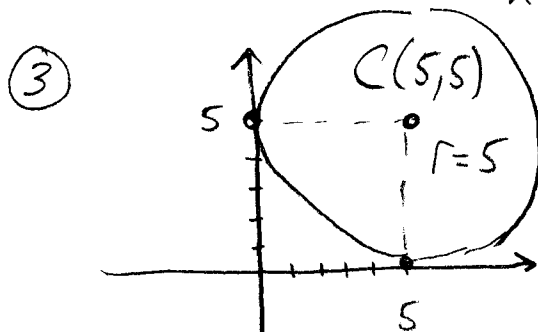
BE-Geometry I TUESDAY 3-15-11

ACT
PRACTICE

- ① The ratio of the radii of 2 circles is 4:9. What is the ratio of their circumferences?
- ② If 115% of a number is 460, what is 75% of the number?
- ③ A circle in the standard (x,y) coordinate plane is tangent to the x-axis at 5 and tangent to the y-axis at 5. What is the equation of the circle?

① $\frac{r_1}{r_2} = \frac{4}{9}$ $\frac{C_1 = 2\pi 4 = 8\pi}{C_2 = 2\pi 9 = 18\pi} = \boxed{\frac{4}{9}}$

② $1.15x = 460 \quad \therefore x = \frac{460}{1.15} \quad \therefore \frac{460 \cdot 100}{115} \cdot \frac{15}{100}$
 $\downarrow$
 $1\frac{15}{100} = \frac{115}{100}$
 $x = \frac{460 \cdot 15}{23} = \boxed{300 = x}$

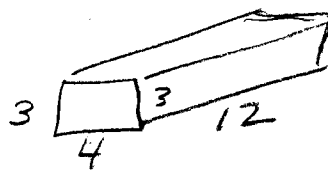


$$\boxed{(x-5)^2 + (y-5)^2 = 25}$$

Geometry 1 - HW Reviews Pg. 651 #6, 8, 9, 11

⑥ Lateral Area = ?

Rectangular Prism



Each lateral face $\Rightarrow (3)(12) = 36 \text{ units}^2$
If base is 3×4 :
 $\times 2 \text{ faces}$
 $\hline 72 \text{ units}^2$

$\Rightarrow 4(12) = 48 \text{ units}^2$
 $\times 2 \text{ faces}$
 $\hline 96 \text{ units}^2$

$\therefore L = 96 + 72 = 168 \text{ units}^2$

If Base is 3×4

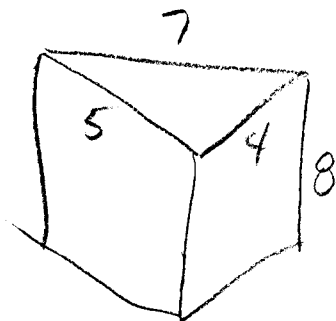
If base is $3 \times 12 \Rightarrow 2(4 \cdot 12) = 96$
 $+ 2(3 \cdot 4) = 24$

$\boxed{120 \text{ units}^2}$

If base is $4 \times 12 \Rightarrow 2(3 \cdot 12) = 72$
 $2(3 \cdot 4) = 24$

$\boxed{96 \text{ units}^2}$

⑦



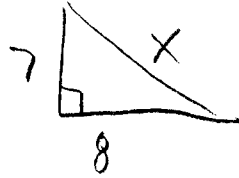
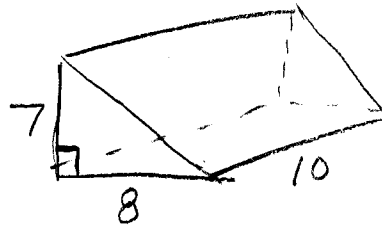
$7 \cdot 8 = 56$

$4 \cdot 8 = 32$

$5 \cdot 8 = 40$

$\boxed{128 \text{ units}^2}$

⑧



$$X^2 = 7^2 + 8^2$$

$$X^2 = 49 + 64 = 113$$

$$X = \sqrt{113} \approx 10.63$$

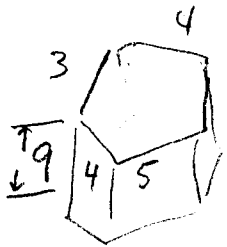
$$\therefore 7 \cdot 10 = 70.0$$

$$10.63 \cdot 10 = 106.3$$

$$8 \cdot 10 = \oplus 80.0$$

$$256.3 \text{ UNITS}^2$$

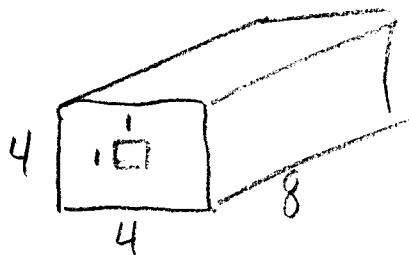
⑨



$$L = Ph = 18 \cdot 9 = 162 \text{ UNITS}^2$$

NOTE: INNER AREA Adds to surface area.

⑪



4x4 BASE

$$L = (4 \cdot 8) \cdot 4 = 128$$

$$+ (1 \cdot 8) \cdot 4 = 32$$

$$160 \text{ UNITS}^2$$

4x8 BASE

$$L \Rightarrow (4 \cdot 8) \cdot 2 = 64$$

$$(4 \cdot 4) - (1 \cdot 1) = 15 \Rightarrow 15 \cdot 2 = 30$$

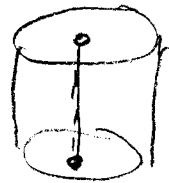
$$(1 \cdot 8) \cdot 4 \longrightarrow = 32$$

$$126 \text{ UNITS}^2$$

Ch. 12-4 Surface Area of Cylinders

AXIS OF
CYLINDER

line segments that connect
centers of the circular bases



RIGHT
CYLINDER

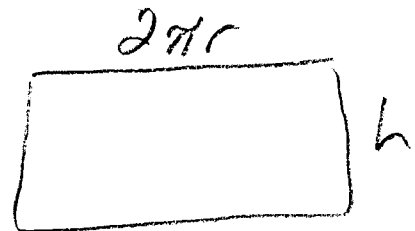
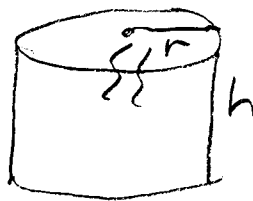
The AXIS IS AN ALTITUDE

↓
HITS both
ENDS AT 90°

oblique
cylinder

Any cylinder that is not
a right cylinder. 

Lateral Area



$$L = (2\pi r)(h) \quad \text{Pg 655}$$

Total Surface
Area

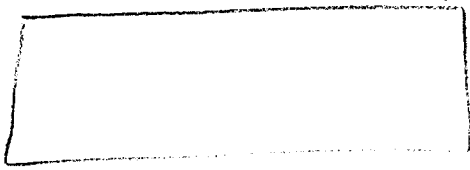
$$\underbrace{2 \cdot \pi r^2}_{\text{2 bases}} + \underbrace{2\pi r h}_{\text{Lateral Area}} = T$$

Ex 1
Pg 655

Recycling barrels. Cylindrical.
Cardboard sides. Plastic bases.

$h = 3\text{ ft}$. diameter = 30 in. Find
 ft^2 of cardboard for each barrel.

$L = \text{cardboard} = \text{lateral area}$

$$2\pi r = 2\pi\left(\frac{5}{2}\right) = \frac{5}{2}\pi \quad \text{dia} = 30\text{ in}$$


$$3\text{ ft} \quad r = 15\text{ in} \cdot \frac{1\text{ ft}}{12\text{ in}}$$

$$= \frac{5}{4}\text{ ft}$$

$$L = \frac{5}{2}\pi \cdot 3 = \boxed{\frac{15}{2}\pi \text{ ft}^2} \quad \text{EXACT}$$

$$= 7.5(3.1416) \approx 23.562$$

$$\approx \boxed{23.6 \text{ ft}^2}$$

APPROXIMATE

How many sq. inches in a sq ft?
(in²) (ft²)

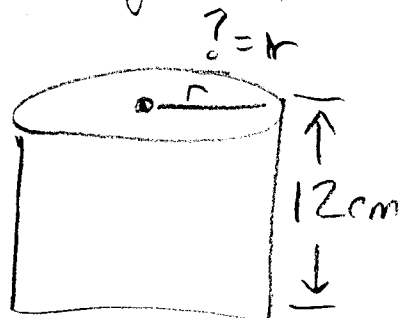
$$\boxed{1\text{ ft}^2} \quad 1\text{ ft} = 12\text{ in} = \boxed{144\text{ in}^2}$$

$1\text{ ft} = 12\text{ in}$

Ex 3 Find missing dimensions

Pg 656 Find r of cylinder in total

Surface Area = $128\pi \text{ cm}^2$, $h = 12 \text{ cm}$
(right cylinder)



$$T = 2(\pi r^2) + 2\pi r(h)$$

$$T = 2\pi r^2 + 24\pi r$$

$$128\pi = 2\pi r^2 + 24\pi r$$

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

$$64 = r^2 + 12r \quad \therefore r^2 + 12r - 64 = 0$$

$$\text{Sum} \Rightarrow b = 12$$

$$\text{prod} \Rightarrow ac = -64$$

$$-4 \quad +16$$

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

$$r = 4, -16$$

↑
NOT possible

$$\therefore \boxed{r = 4 \text{ cm}}$$

Homework: Pg 657 # 4-7.