

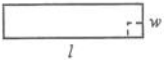
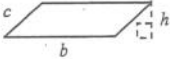
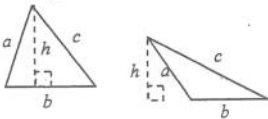
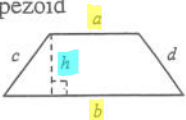
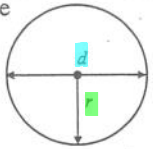
Measurement Lesson #1: Perimeter and Area

The **perimeter** is defined as the *distance around an object*. It can be found by **adding up** the measurements of all the *edges* of an object.

When finding the perimeter, it is easiest to **cross** off each side as you add it so you don't miss a side.

Alternately, the formulae below can be used to find the perimeter of an object.

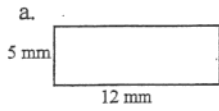
Area is defined as being the *space* in between the *edges* of a two dimensional object. To find the area of objects, one of several **formulae** need to be used. The following lists the formula for each figure:

Geometric Figure	Perimeter	Area
	$* P = L + L + w + w$ $P = 2l + 2w$ $P = 2(l + w)$	$* A = lw$
	$* P = b + b + c + c$ $P = 2b + 2c$	$* A = bh$
	$* P = a + b + c$	$* A = \frac{bh}{2}$
	$* P = a + b + c + d$	$A = \frac{1}{2}(a + b)h$ $* A = \frac{(a + b)h}{2}$
	$* C = \pi d$ or $* C = 2\pi r$ perimeter of circle \Rightarrow called circumference	$A = \pi r^2$ radius

Note: (h) is at a 90° to base

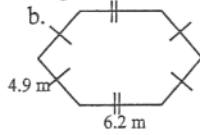
Note: square "r" first, then multiply by π

Ex 1: Find the perimeter of the following:



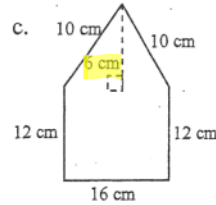
$$P = 5 + 12 + 5 + 12$$

$$= \boxed{34} \text{ mm } \checkmark$$



$$P = 4.9 + 4.9 + 6.2 + 4.9 + 4.9 + 6.2$$

$$= \boxed{32} \text{ mm } \checkmark$$



$$P = 10 + 10 + 12 + 16 + 12$$

$$= \boxed{60} \text{ cm } \checkmark$$

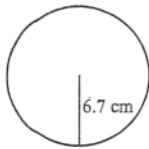
Reminder:

$$C = \pi d$$

OR

$$C = 2\pi r$$

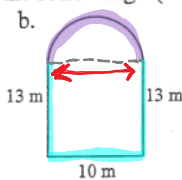
Ex 2: Find the perimeter of the following. (Write the formula down)



$$C = 2\pi r$$

$$= 2(3.14)(6.7)$$

$$= \boxed{42.1} \text{ cm}$$



$$P = 13 + 10 + 13 = 36 \text{ cm}$$

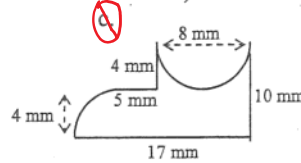
plus

Half of $C = \pi d$

$$C = (3.14)(10)$$

$$= 31.4 \div 2$$

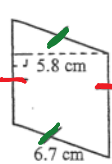
$$= 15.7 \text{ cm}$$



$$P = 36 + 15.7$$

$$= \boxed{51.7} \text{ m } \checkmark$$

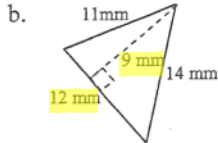
Ex 3: Find the area of the following:



$$A = bh$$

$$= (5.8)(6.7)$$

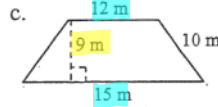
$$= \boxed{38.86} \text{ cm}^2$$



$$A = \frac{b \times h}{2}$$

$$= \frac{9 \times 12}{2}$$

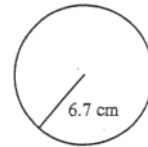
$$= \boxed{54} \text{ mm}^2$$



$$A = \frac{(a+b)h}{2}$$

$$= \frac{(12+15)9}{2}$$

$$= \boxed{121.5} \text{ m}^2$$



$$A = \pi r^2$$

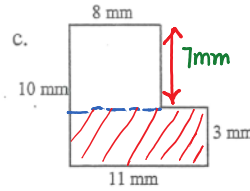
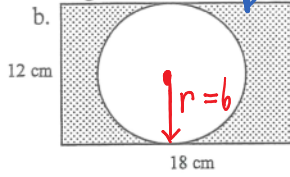
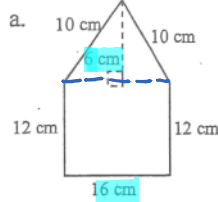
$$= (3.14)(6.7)^2$$

$$= \boxed{140.95} \text{ cm}^2$$

Now, let's try some composite figures. For these, split the figure into 2 or more of the basic figures above, and find the area of each figure.

shaded area $\square - \bigcirc$

Ex 4: Find the area of the following:



① $A_{\Delta} = \frac{b \times h}{2}$
 $= \frac{16 \times 6}{2}$
 $= 48$

$A_{\square} = L \times W$
 $= 12 \times 18$
 $= 216$
 $A_{total} = A_{\Delta} + A_{\square}$
 $= 48 + 168$
 $= 216$

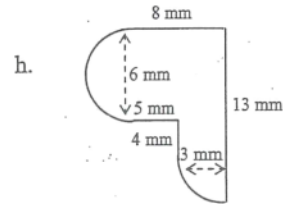
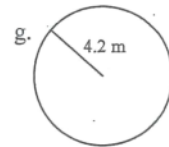
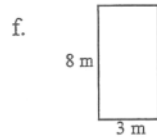
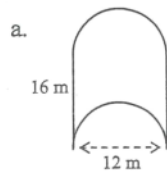
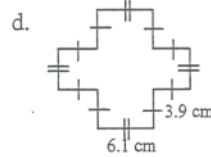
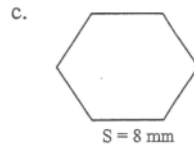
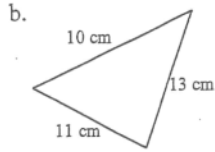
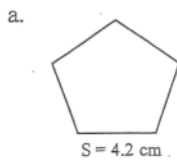
② $A_{\square} = L \times W$
 $= 12 \times 18$
 $= 216$

$A_{\bigcirc} = \pi r^2$
 $= (3.14)(6)^2$
 $= 113.04$

$A_{total} = A_{\square} - A_{\bigcirc}$
 $= 216 - 113.04$
 $= 102.96 \text{ cm}^2$

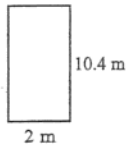
Assignment: #1 (A, D, E, G) #2 (B, C, E, F, H, J, K) #3 (A, B, D)

1. Find the perimeter of the following:

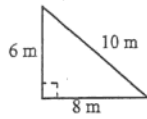


2. Find the area of the following:

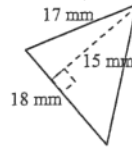
a.



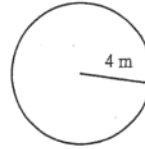
b.



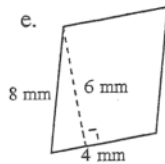
c.



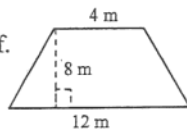
d.



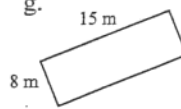
e.



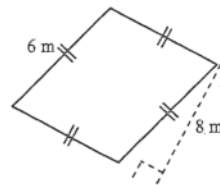
f.



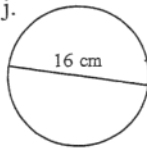
g.



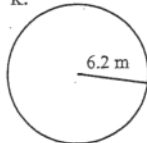
h.



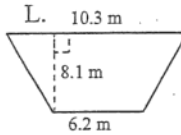
j.



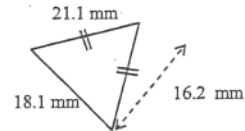
k.



l.

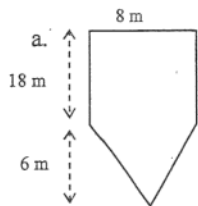


m.

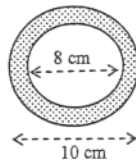


3. Find the area:

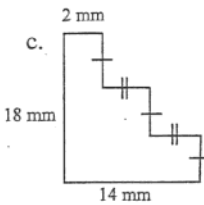
a.



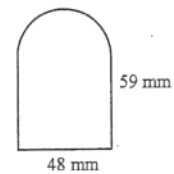
b.



c.



d.



4. Solve the following (draw a picture)
- A man paints a rectangular wall with a circular hole of radius 56 cm. If the dimensions of the wall are 180 cm x 320 cm, find the painted area.
 - A square lawn has a fence that is 80 m around the whole lawn. Find the area of the lawn.
 - The cross section of a circular concrete pipe has an inner diameter of 15 cm, and an outer diameter of 28 cm. Find the area of the concrete of the cross section
 - A dart board is five concentric rings which are each 10 cm thick. If the bull's eye has a radius of 10 cm, find the area of each ring, and the bull's eye.

