Name:

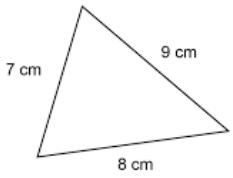
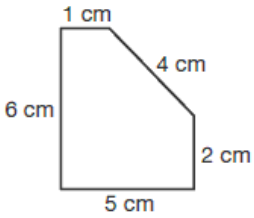
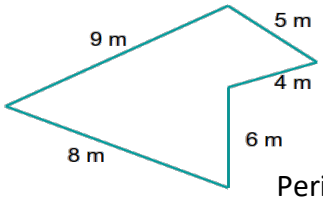
UNIT 3 LEARNING GUIDE – GEOMETRY

INSTRUCTIONS:

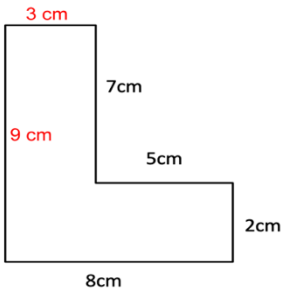
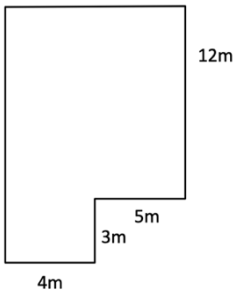
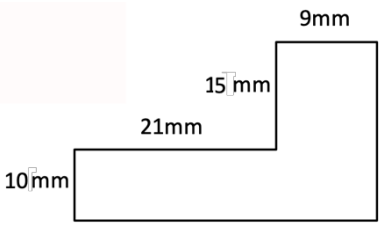
Using a pencil, complete the following questions as you work through the related lessons. Show ALL of your work as is explained in the lessons. Do your best and always ask questions if there is anything that you don't understand.

3.1 PERIMETER

1. Find the perimeter of each of the figures below. Be sure to show your work and include units.

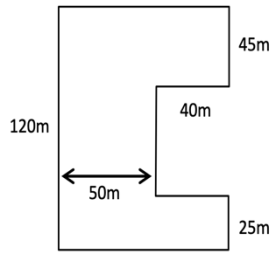
Example:	a)	b)
		
Perimeter = 7 + 9 + 8 = 24 cm	Perimeter = _____ _____	Perime _____ _____

2. Find the perimeter of each of the figures below. Be sure to show your work and include units.

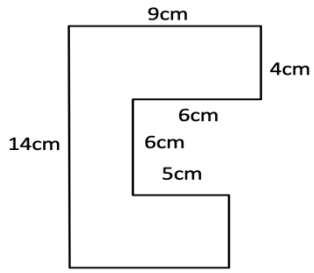
Example:	a)	b)
		
Missing sides are 9 and 3 P = 3 + 7 + 5 + 2 + 8 + 9 = 34 cm	P = _____ _____ _____ _____	P = _____ _____ _____ _____

c)

P =



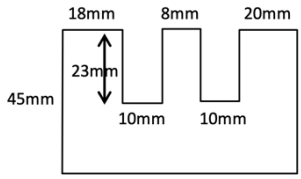
d)



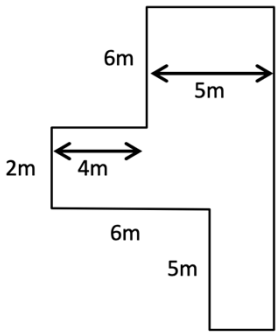
P = _____

e)

P =

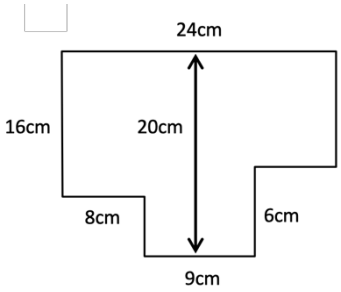


f)



P = _____

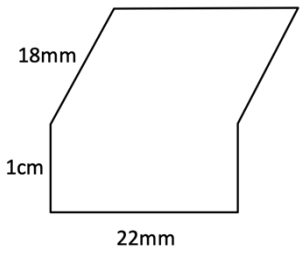
g)



P = _____

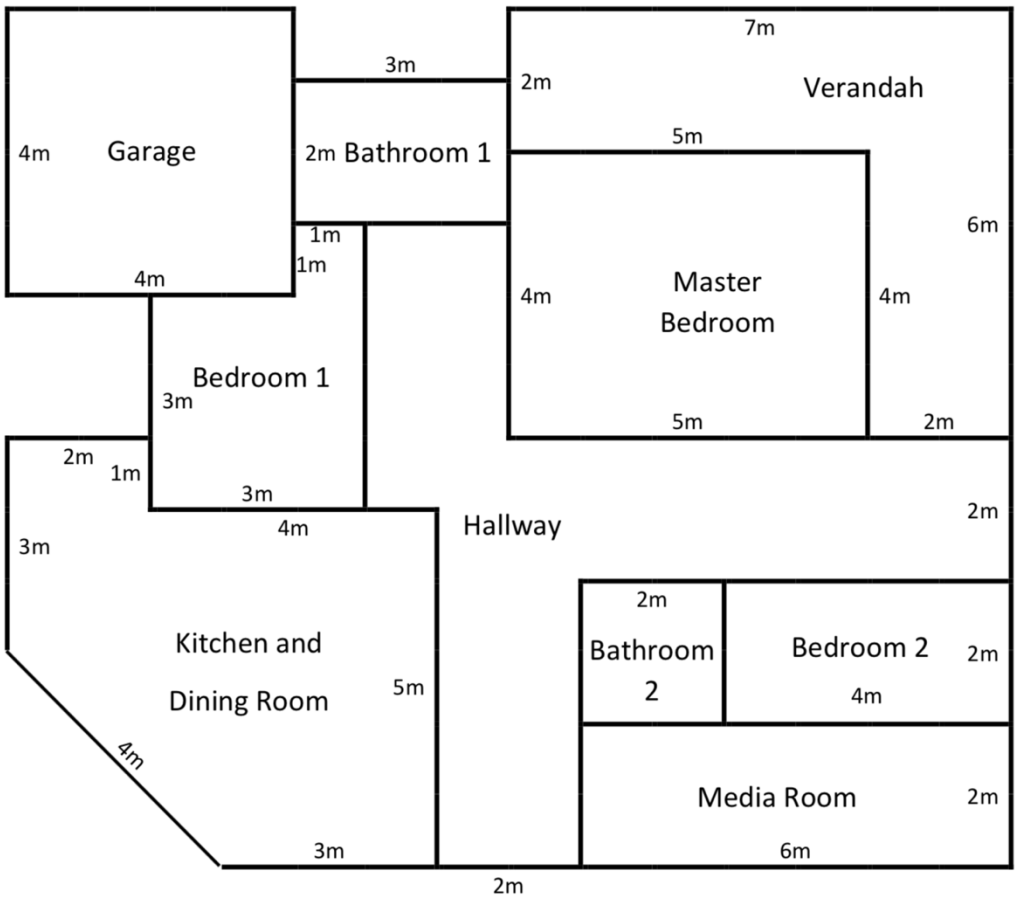
h)

P =



(This shape is made from a rectangle and a parallelogram)

3. This is a floor plan for a new home.



Use the floorplan to find the perimeter of each of the following rooms

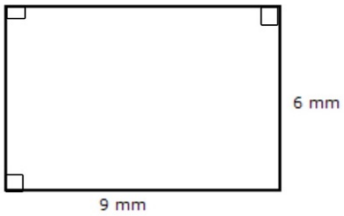
Master Bedroom	Bathroom 2	Media Room
Bedroom 1	Verandah	Bathroom 1
Bedroom 2	Kitchen and Dining Room	Hallway

Adapted from www.easyteaching.net

3.2 Area

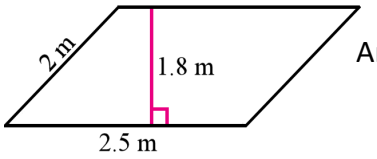
1. Find the area of each of the following rectangles and parallelograms.

Example:



Area = l x w
= 6 x 9
= 54 mm^2

a)



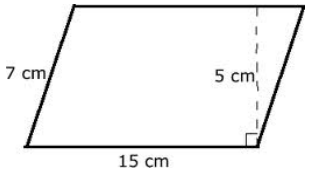
Area

_____

_____

_____

b)



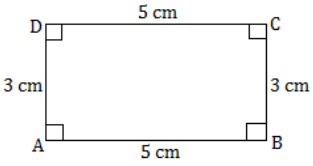
Are

_____

_____

_____

c)

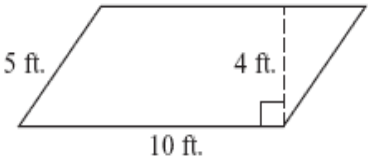


Area = _____

_____

_____

d)

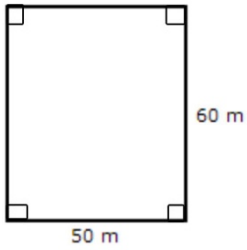


Area = _____

_____

_____

e)



Are

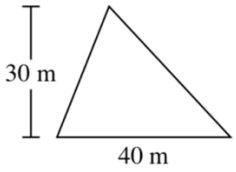
_____

_____

_____

2. Find the area of each of the following triangles.

Example:

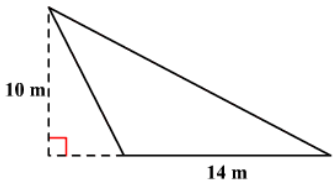


$Area = \frac{1}{2}bh$

$= \frac{1}{2} x\ 40\ x\ 30$

$= 600\ m^2$

a)

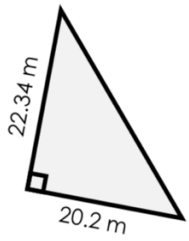


Area = _____

_____

_____

b)

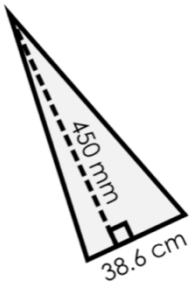


Area = _____

_____

_____

c)

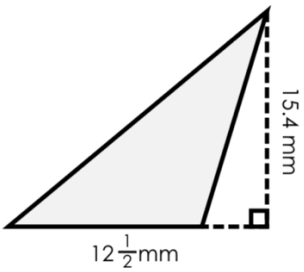


Area = _____

_____

_____

d)

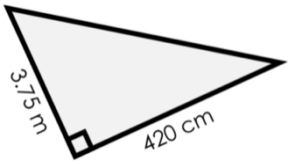


Area = _____

_____

_____

e)



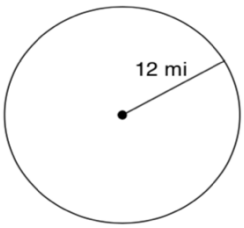
Area = _____

_____

_____

3. Find the area of each of the following circles. Use π = 3.14 .

Example:



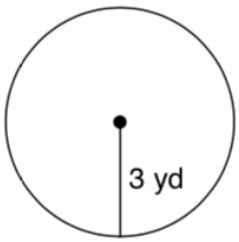
Area = $\pi\ r^2$

= $(3.14)(12)^2$

= 452.16 mi^2

a)

Are



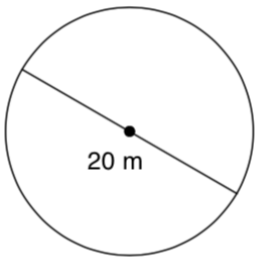
_____

_____

_____

b)

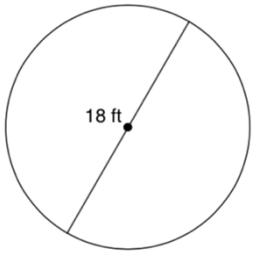
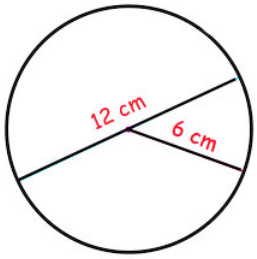
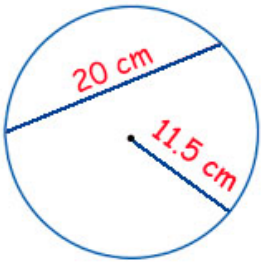
Are



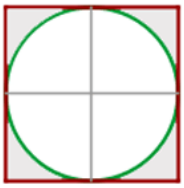
_____

_____

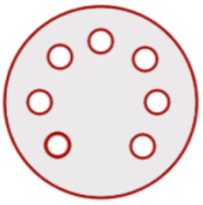
_____

c)	d)	e)
	 Are	
Area = _____ _____ _____	_____ _____ _____	Area = _____ _____ _____

4. Calculate the shaded area, knowing that the side of the outer square is 6 cm.



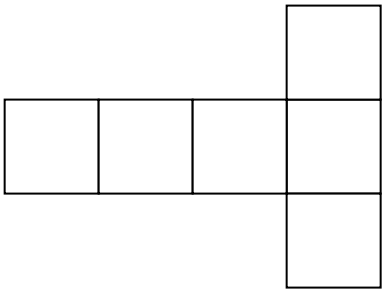
5. In a circular park with a radius of 250 m there are 7 lamps whose bases are circles with a radius of 1 m. The entire area of the park has grass with the exception of the bases for the lamps. Calculate the lawn area.



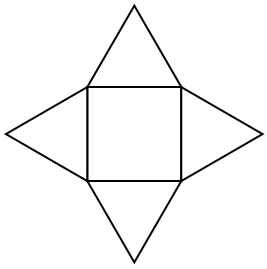
3.3 NETS

Using the nets show below, deduce what the final 3-D shape will end up being. A single name could be used for more than one net. Take your time and try to picture the net in 3-D before writing your answer.

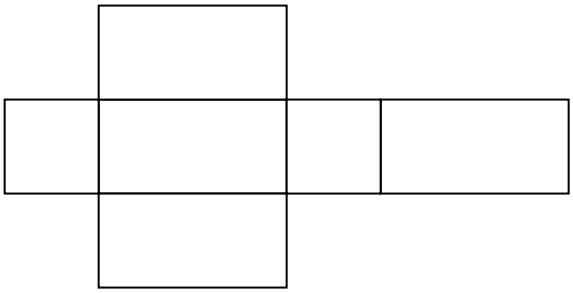
1. _____



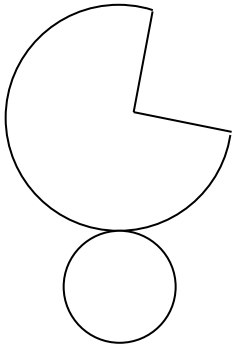
2. _____



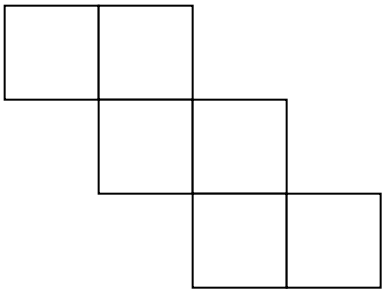
3. _____



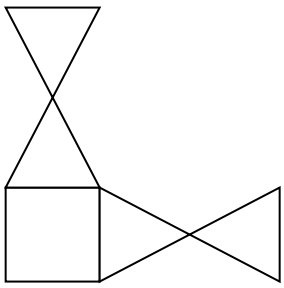
4. _____



5. _____



6. _____



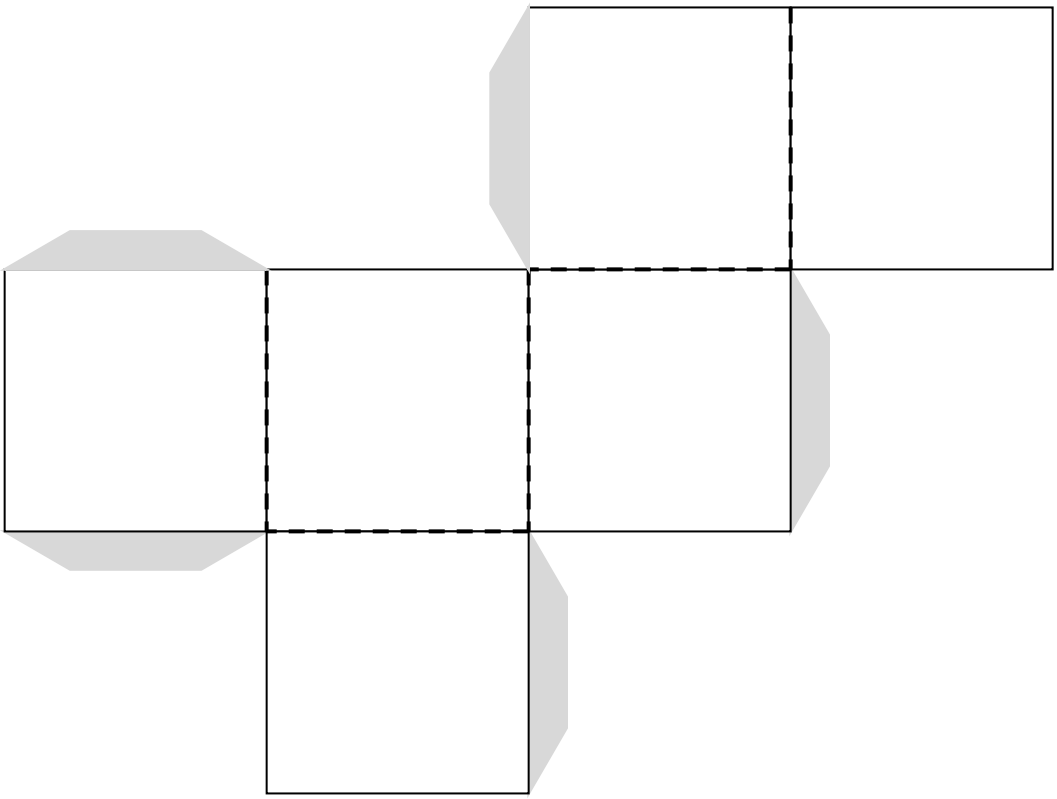
7. Build That Net!

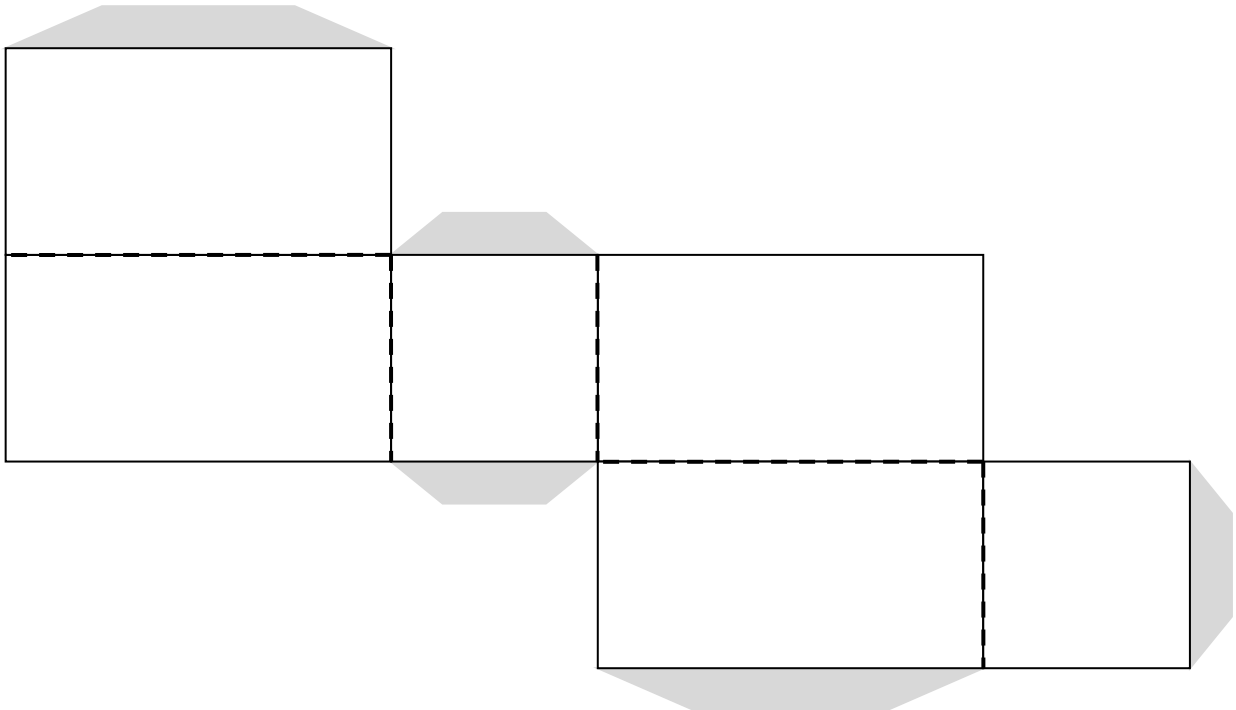
   You will find several large nets on the next three pages of this Learning Guide. Cut out each of these carefully and actually construct the 3-D version of the net. Cut out the net carefully, being sure to leave the construction tabs in place also (light gray). The dotted lines indicate possible folding points, not cut points. Before you start constructing, be sure you know which 3-D object you will be creating. You will need some tape or glue to hold the constructs together.

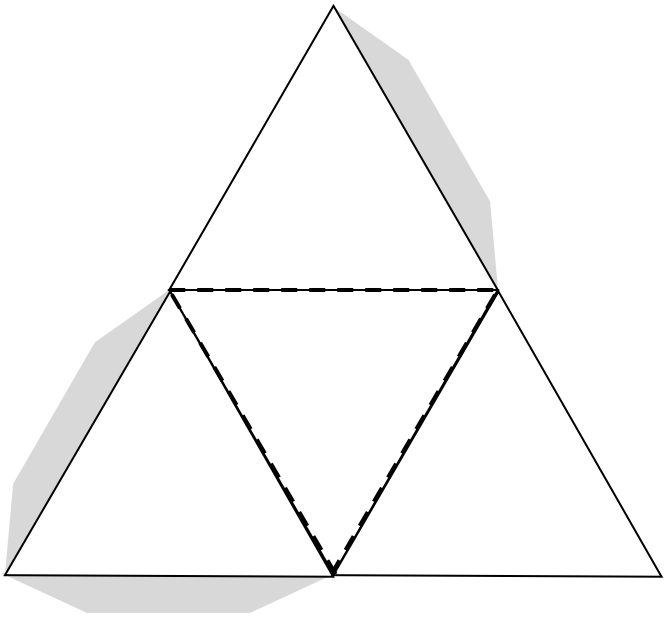
8. Create Your Own Net

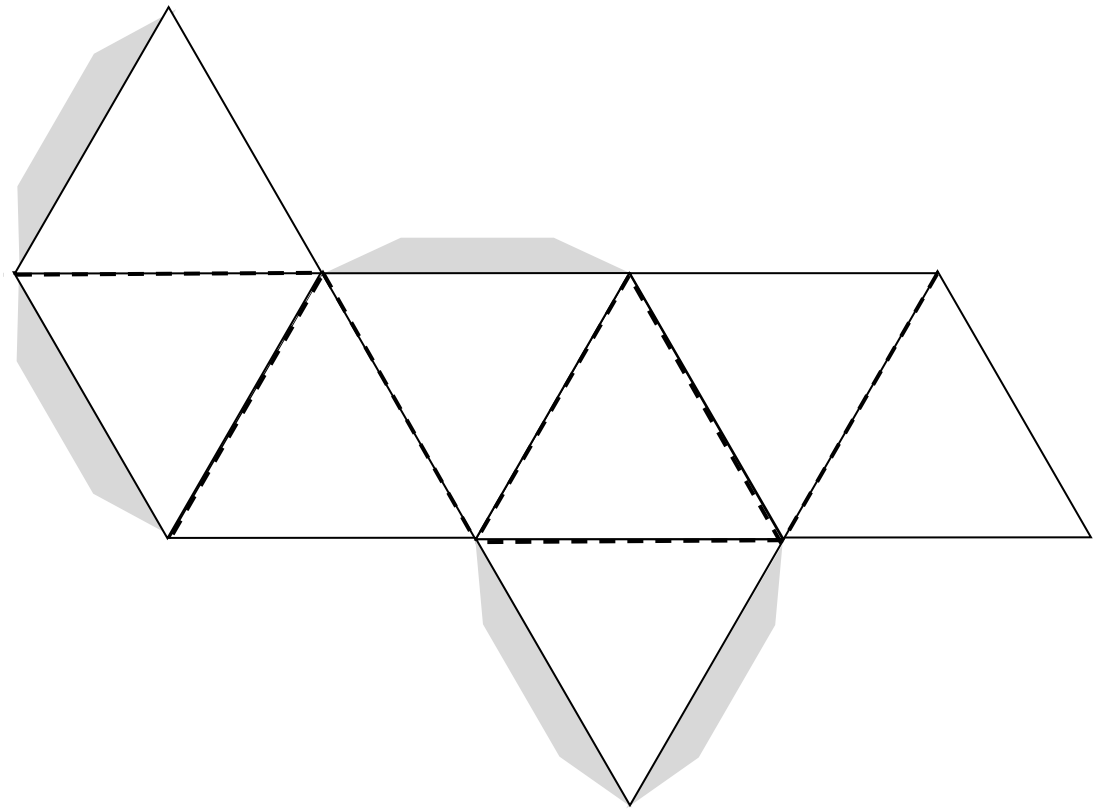
   Now you get the chance to create your own net from scratch. You have been hired to create a model of a one-story house with an annex. Create a net and construct the 3-D object. Be as creative as you wish with this.

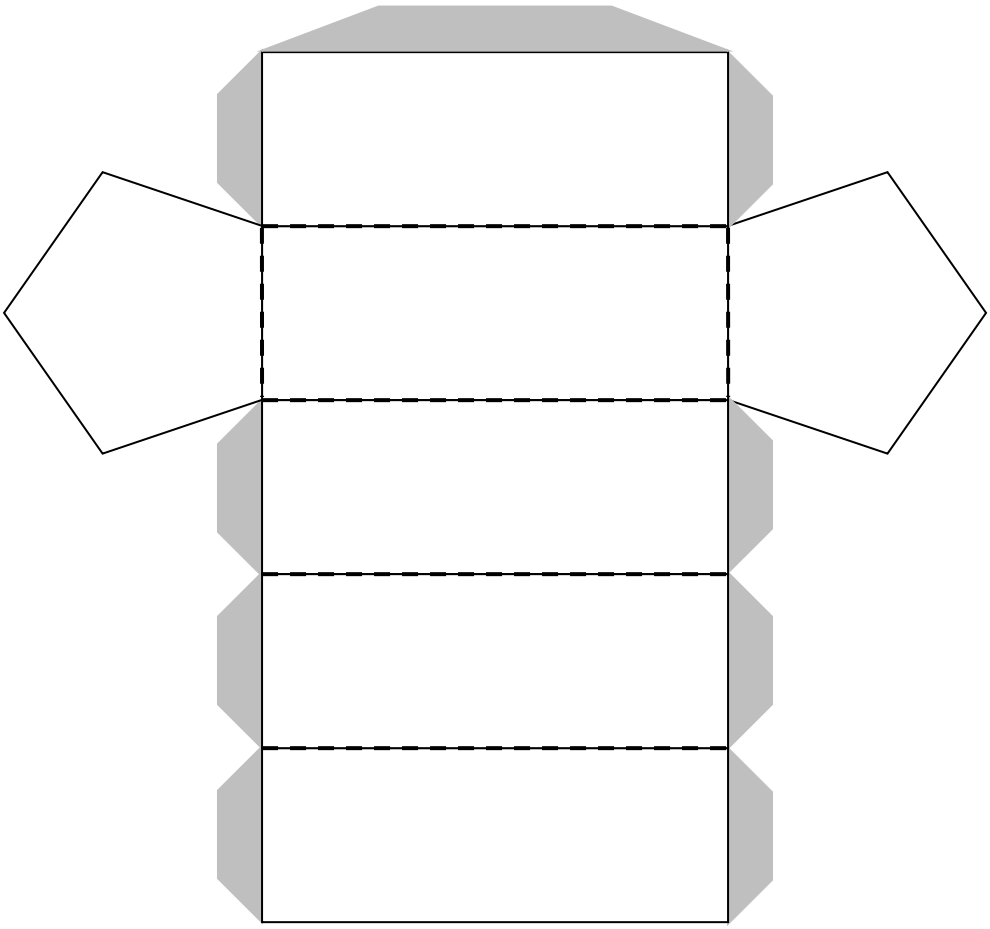
Draw your net below:







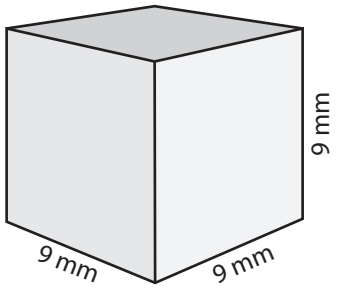




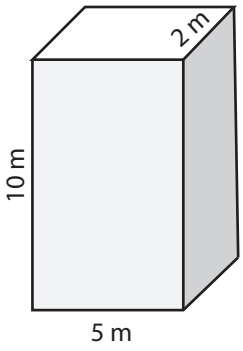
3.4 Surface Area

1. Find the surface area of each of the figures below. Be sure to show formulas and your work . Remember to include units.

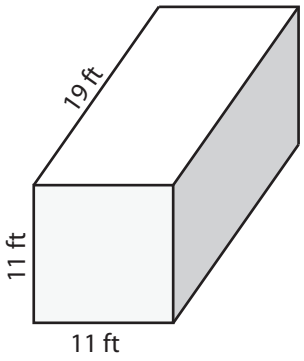
a)



b)

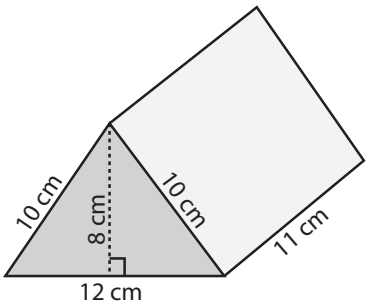


c)

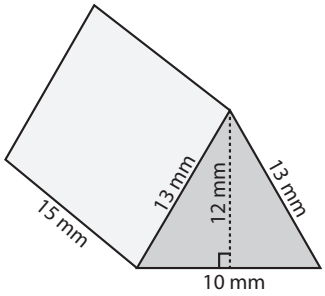


2. Find the surface area of each of the figures below. Be sure to show formulas and your work . Remember to include units.

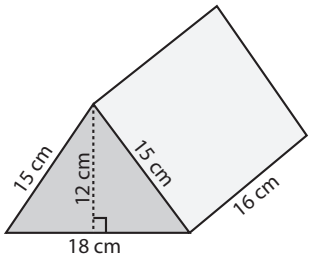
a)



b)

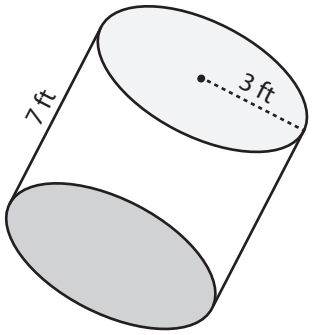


c)

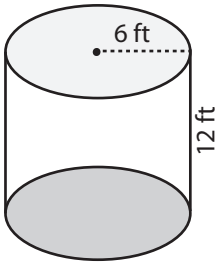


3. Find the surface area of each of the figures below. Use $\pi = 3.14$ if required. Be sure to show formulas and your work . Remember to include units.

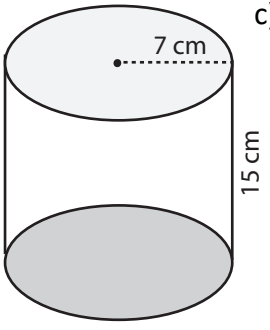
a)



b)



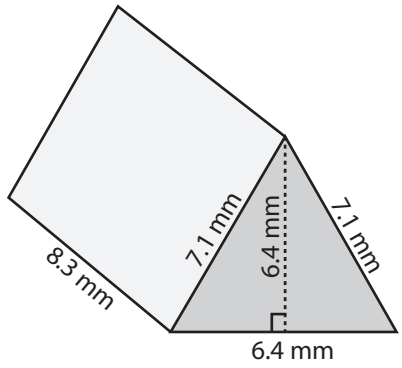
c)



3.5 VOLUME

1. Find the volume of the following shapes. Be sure to include your units**! Show all work**.

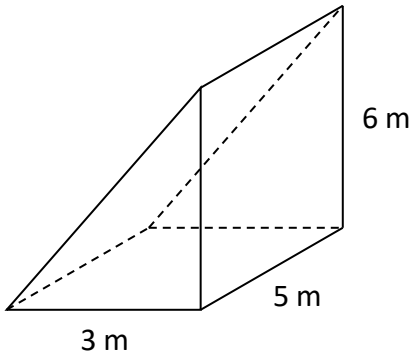
a)



Volume =

_____

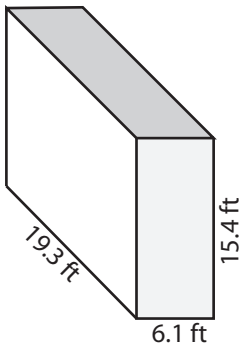
b)



Volume =

_____

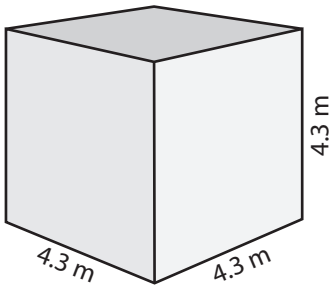
c)



Volume =

_____

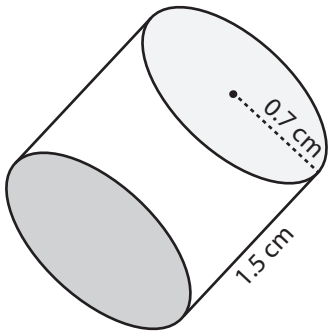
d)



Volume =

_____

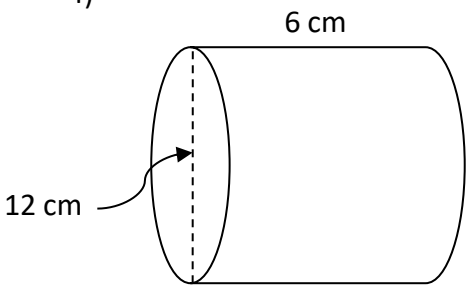
e)



Volume =

_____

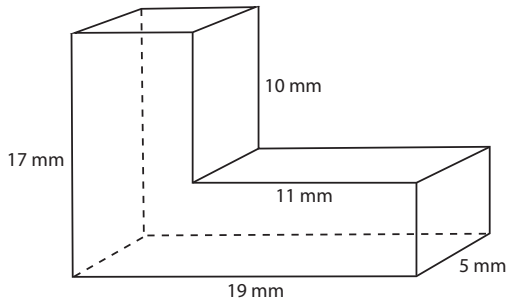
f)



Volume =

_____

2, Calculate the volume of the shape and explain how you got your answer.



Work:

Explain your answer:

UNIT 3 – ANSWER KEY

SECTION 3.1

1. a) 18 cm b) 32 m 2. a) 48 m b) 110 mm c) 500 m d) 56 cm e) 314 mm f) 44 m g) 88 cm h) 10 cm or 100 mm 3.

18 m	8 m	16 m
14 m	26 m	10 m
12 m	22 m	36 m

SECTION 3.2

2. a) 4.5 m^2 b) 75 m^2 c)15 cm^2 d) 40 cm^2 e) 3000 m^2 2. a)70 m^2 b)225.634 m^2 c) 868.5 cm^2 or 8685 mm^2 d)96.25 mm^2 e) 7.875 m^2 or 78750 cm^2 3. a) 28.26 yd^2 b) 314 m^2 c) 254.34 ft^2 d) 113.04 cm^2 e) 415.265 cm^2 4. 7.74 cm^2 5. 196228.02 m^2

SECTION 3.3

1. cube 2. Rectangular pyramid 3. Rectangular prism 4. Cone 5. Cube 6. Rectangular pyramid

SECTION 3.4

1 a) 486 mm^2 b) 160 m^2c) 1078 ft^2 2 a)448 cm^2 b) 660 mm^2 c) 984 cm^2 3 a) 188.50 ft^2 b) 678.58 ft^2 c) 967.61 cm^2

SECTION 3.5

1. a) 169.984 mm^3 b) 45cm^3 c) 1813.042 ft^3 d) 79.507 cm^3 e) 2.3091 cm^3 f) 678.58 cm^3
2. 1065 mm^3