Name: _____

Date: _____

1. Match the following terms with the correct definition:

   _D_ perimeter

   _A_ area

   _B_ net

   _C_ surface area

   A. the space occupied by a flat (2-dimensional shape)

   B. a 2-dimensional pattern that you could cut and fold to make a model of a 3-dimensional shape

   C. the sum of all the areas of all the faces of a 3-dimensional shape

   D. the distance around a two-dimensional shape

2. Sketch a net of the object shown. Label the dimensions.

   10cm

   roof side bottom side roof   30cm

   10 cm
   10 cm
   30 cm
   10 cm
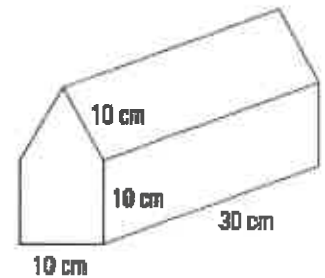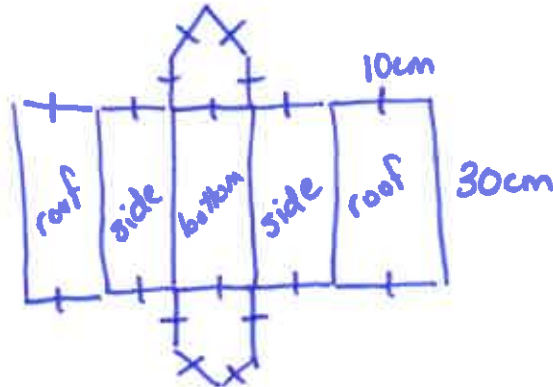
3. Which block of cheese has more surface area to wrap: the rectangular prism or the cylinder? By how much, to the nearest square centimere?
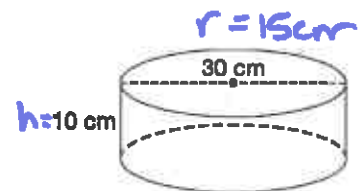
   $W = 7$ cm $l = 30$ cm

   $H = 10$ cm

   Rect. Prism

   $SA = 2(wh + lw + lh)$
   $\quad = 2[(7)(10) + (30)(7) + (30)(10)]$
   $\quad = 2[70 + 210 + 300]$
   $\quad = 2(580)$
   $\quad = 1160\,cm^2$

   $r = 15cm$

   30 cm

   $h = 10$ cm
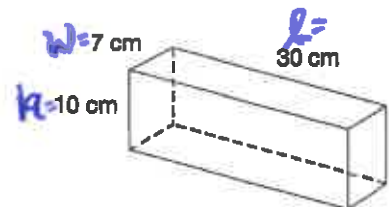
   Cylinder

   $SA = 2\pi r^2 + 2\pi r h$
   $\quad = 2\pi(15)^2 + 2\pi(15)(10)$
   $\quad = 1413.717 + 942.477$
   $\quad = 2356\,cm^2$

   2356 - 1160
   = 1196

   | Cylinder by 1196cm² |

4. Calculate the surface area of the triangular prism.

$$SA = bh + L(s_1 + s_2 + s_3)$$
$$= 2(2.8) + 3(3+3+2)$$
$$= 5.6 + 3(8)$$
$$= 5.6 + 24$$
$$= \boxed{29.6 \text{ in}^2}$$

3.0 in.
h= 2.8 in.
3.0 in.
3.0 in.
b= 2.0 in.   L=
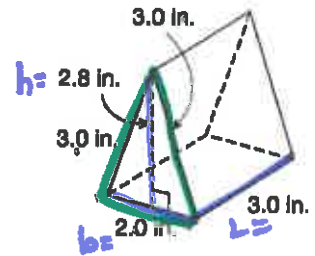
5. A sphere has a diameter of 12 cm. What is the sphere's surface area, rounded to the nearest hundredth?

$$SA = \pi d^2$$
$$= \pi (12)^2$$
$$= \boxed{452.39 \text{ cm}^2}$$

6. Melissa is making a bird feeder with a metal roof.

Melissa made an error when she calculated the area of metal needed for the roof. Circle the error and correct her solution.

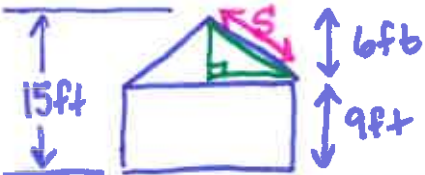SA(roof) is the lateral area of cone

$SA = \pi rs$
$= \pi (20 \text{ cm})(30 \text{ cm})$
$= 1884.955... \text{ cm}^2$

I will need about 1880 cm² of metal for the roof.

$$SA = \cancel{\pi r^2} + \pi rs$$
$$SA = \pi rs$$
$$= \pi (10)(30)$$
$$= \boxed{942.5 \text{ cm}^2}$$

s = 30 cm
base diameter = 20 cm
r = 10

7. Calculate the surface area of the figure shown.
The height to the peak is 15 ft.

15ft
6ft
9ft

$$SA = b^2 + 2bs$$
$$= 22^2 + 2(22)(12.530)$$
$$= 1035.32 \text{ ft}^2$$
← includes bottom!

$6^2 + 11^2 = s^2$
$\sqrt{157} = s$
$12.530 = s$

+4 walls
$$= 4(22)(9)$$
$$= 792 \text{ ft}^2$$

22 ft
9
22
b = 22 ft
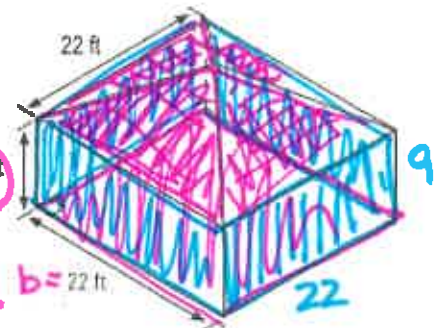
$$\text{total } SA = 1035.32 + 792$$
$$= \boxed{1827.32 \text{ ft}^2}$$