

1.3 Surface Area

November-22-13
12:59 PM

Surface Area:

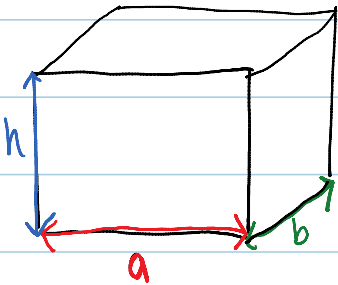
- the sum of the areas of all the faces of an object
- different formulas can be used to find surface area

CUBE



$$SA_{\text{cube}} = 6a^2$$

RECTAGULAR PRISM



a = length
b = width
h = height

$$SA_{\text{prism}} = 2ab + 2bh + 2ah$$

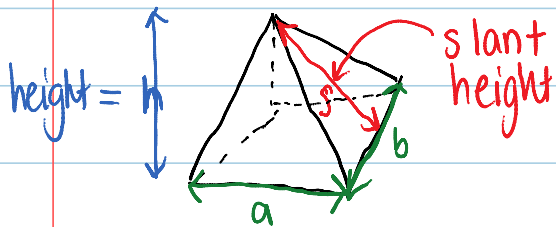
area of
Top and bottom
faces

area of
Front and
back faces

area of
side faces

Triangular Pyramid

(square-based pyramid)



$$SA_{\text{prism}} = ab + bs + as$$

CYLINDER

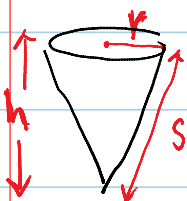


$$SA_{\text{cylinder}} = 2\pi r^2 + 2\pi rh$$

SA of the
ends of the
cylinder

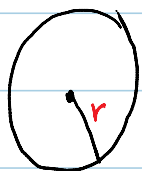
SA of the
side or tube

CONE



$$SA_{\text{cone}} = \pi r^2 + \pi rs$$

SPHERE

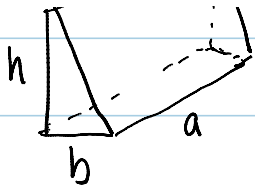


$$SA_{\text{sphere}} = 4\pi r^2$$

Triangular Prism

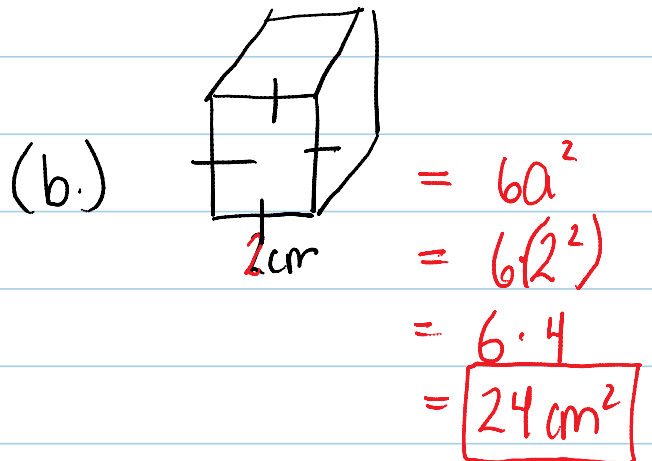
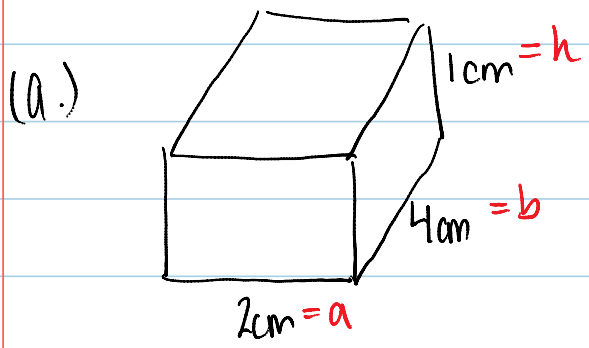


$$SA_{\text{prism}} = 2\left(\frac{1}{2}bh\right) + ac + ab + ah$$



Prism $L(2D)$: $AC + AD + AL$

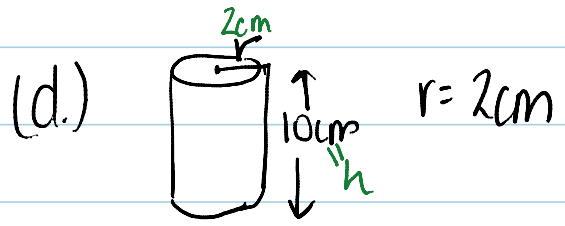
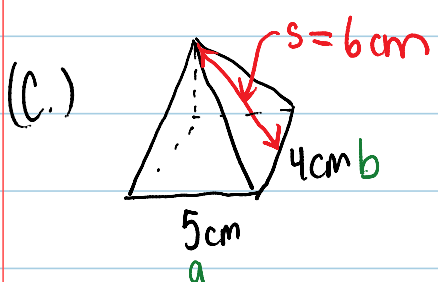
Ex 1



$$SA = 2ab + 2bh + 2ah$$

$$= 2 \cdot 2 \cdot 4 + 2 \cdot 4 \cdot 1 + 2 \cdot 2 \cdot 1$$

$$= 16 + 8 + 4 = 28 \text{ cm}^2$$



$$SA = ab + bs + as$$

$$= 5 \cdot 4 + 4 \cdot 6 + 5 \cdot 6$$

$$= 20 + 24 + 30$$

$$= 74 \text{ cm}^2$$

$$SA = 2\pi r^2 + 2\pi rh$$

$$= 2\pi(2^2) + 2\pi \cdot 2 \cdot 10$$

$$= 2\pi \cdot 4 + 2\pi \cdot 20$$

$$= 150.8 \text{ cm}^2$$

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