

1.3.1) Math 11 AW - notesArea Review

$$A_O = \pi r^2 \quad \text{(circle with radius } r\text{)} \quad A_{\Delta} = \frac{b \times h}{2} \quad \text{(triangle with base } b\text{ and height } h\text{)} \quad A_{\square} = \frac{a+b}{2} \times h \quad \text{(trapezoid with top base } a\text{, bottom base } b\text{, and height } h\text{)}$$

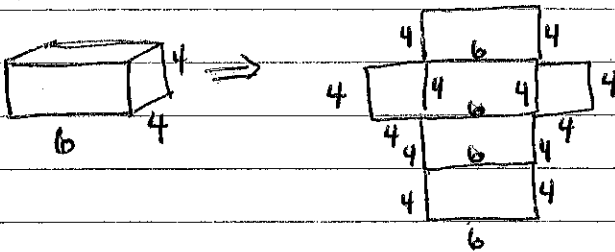
$$A_{\square} = l \times w \quad \text{(rectangle with length } l\text{ and width } w\text{)} \quad A_{\square} = b \times h \quad \text{(parallelogram with base } b\text{ and height } h\text{)}$$

Perimeter = add all side

$$C \text{ (perimeter of a circle)} = 2\pi r \text{ or } \pi d$$

Surface Area - add areas of all sides

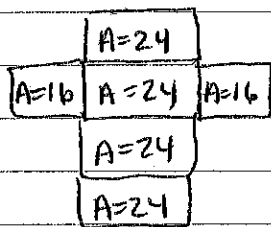
nets - the shape when broken down so it lays flat.



① To use the net to find the surface area - label all sides in net.

② Then find all individual shape areas.

③ add all areas.



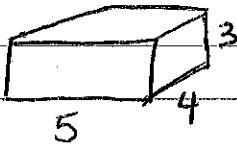
$$\begin{aligned} SA &= 16 + 16 + 24 + 24 + 24 + 24 \\ &= 128 \end{aligned}$$

3.2 Math 11 AW - notesSurface Area -

To find surface area without using nets

- ① find which sides are the same
- ② find area of all sides
- ③ add together.

ex 1



Front + Back are the same

$$\text{Area (front)} = 5 \times 3 = 15$$

$$\text{Area back} = 15$$

Top + Bottom are same

$$\text{Area Bottom} = 5 \times 4 = 20$$

$$\text{Top} = 20$$

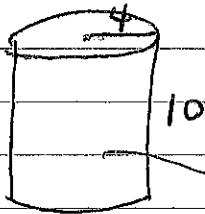
2 sides are the same

$$\text{Area side} = 4 \times 3 = 12$$

$$\text{Area side 2} = 12$$

$$\begin{aligned} \text{Surface Area} &= 15 + 15 + 12 + 12 + 20 + 20 \\ &= 94 \end{aligned}$$

ex 2



2 circles are the same

$$A_{\text{circle}} = \pi r^2 = \pi(4)(4) = 50.3$$

$$\text{other circle} = 50.3$$

if we cut this apart  
it would be



$$A = 2\pi r \times h$$

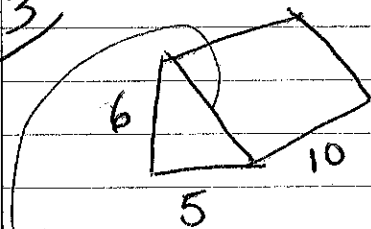
$$= 2\pi(4) \times 10$$

$$= 251.3 \times 10$$

$$= 251.3$$

$$\begin{aligned} \text{Surface Area} &= 251.3 + 50.3 + 50.3 \\ &= 351.9 \end{aligned}$$

EX 3



use pyth. theorem  
to find this side

$$a^2 + b^2 = c^2$$

$$6^2 + 5^2 = c^2$$

$$36 + 25 = c^2$$

$$\sqrt{61} = \sqrt{c^2}$$

$$c = 7.8$$

2 triangles are the same

$$A_{\Delta} = \frac{b \times h}{2} = \frac{6 \times 5}{2} = 15$$

$$\text{Another triangle} = 15$$

$$\text{Front} = 7.8 \times 10 = 78$$

$$\text{Back} = 10 \times 6 = 60$$

$$\text{Bottom} = 10 \times 5 = 50$$

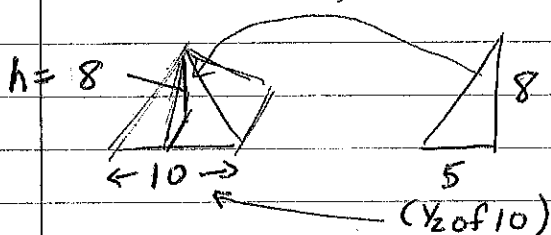
$$\text{Surface Area} = 15 + 15 + 78 + 60 + 50 = 218$$

### [3.3] Surface Area of Pyramids & Cones

Pyramids - if both sides on the bottom are the same then all 4 triangles have the same area.

slant height - you need this to find the area of the triangles.

use pythagorean theorem to use h & base to find slant height.



$$a^2 + b^2 = c^2$$

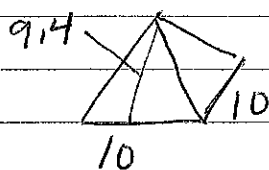
$$8^2 + 5^2$$

$$64 + 25$$

$$\sqrt{89} = \sqrt{c^2}$$

$$c = 9.4$$

∴ slant height = 9.4.



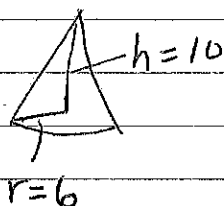
$$\text{Area bottom} = 10 \times 10 = 100$$

$$\text{Area triangle} = \frac{b \times h}{2} = \frac{10 \times 9.4}{2} = 47$$

all 4 triangles are the same  
so  $47 \times 4 = 188$

$$\begin{aligned} \text{Surface area} &= 100 + 188 \\ &= 288 \end{aligned}$$

Surface Area: Cones  $= \pi r^2 + \pi r s$



↑  
slant height

slant height

$$a^2 + b^2 = c^2$$

$$10^2 + 6^2 = c^2$$

$$100 + 36$$

$$\sqrt{136} = \sqrt{c^2}$$

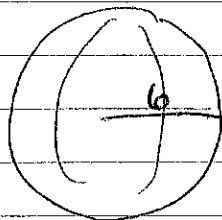
$$c = 11.7$$

$$\text{Surface area} = \pi(6)(6) + \pi(6)(11.7)$$

$$= 113.1 + 220.5$$

$$= 333.6$$

3.4 Surface Area: Sphere  $= 4\pi r^2$



$$SA = 4\pi r^2$$

$$= 4\pi(6)(6)$$

$$= 452.4$$