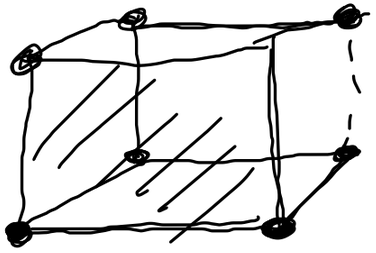
Upcoming dates

1. 3rd Exam will be Posted 04/28th due date : Discuss (05/12.)**
2. Review for final Entire month of May.
3. Final will be Posted after 3rd Exam.
4. Study old Exams for Final.

§13.2 Patterns and Surface Area.

Polyhedra



Cube: type of Prism.

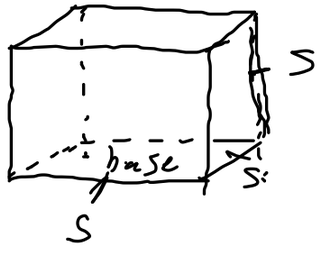
What is Surface Area?

The Surface Area of a Solid Shape is the total Area of the outer Surface of the Shape.

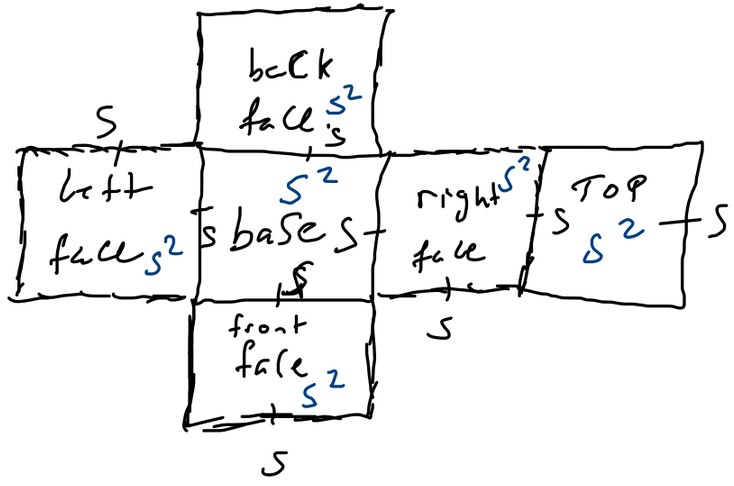
- The common way to find Surface Area is by breaking down the Soild Shape into two dimensional Shapes and find their area and addem up.

Ex/ What is the Surface Area of a Cube?

Cube NOT TO Scale



Break it down →



Total Surface Area

Top + base + lateral faces.

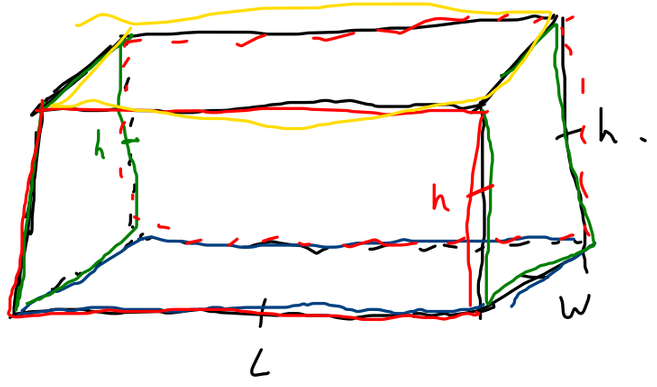
$s^2 + s^2 + 4s^2$

$SA = 6s^2$

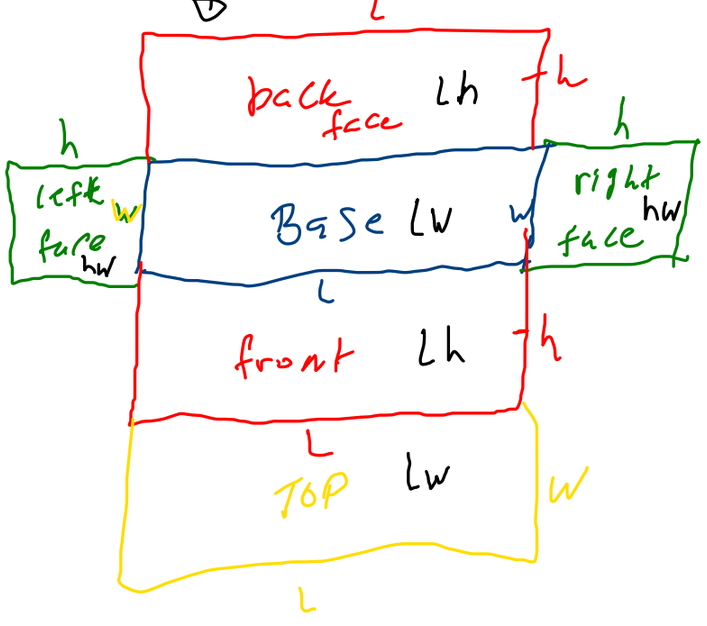
What if you just want sides for Surface Area?

$S.A = 4s^2$

Rectangular Prism.



↓ Break it APart.



Total Surface Area.

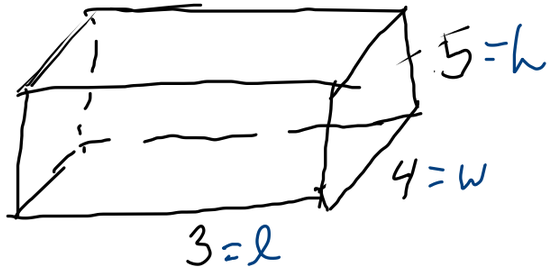
TOP + base + Sides

Lw + Lw + hw + hw + Lh + Lh.

$2Lw + 2hw + 2Lh.$

Pg 591

7. What is the surface area of a closed box (rectangular prism) that is 4 ft wide, 3 ft deep, and 5 ft tall?



* $2Lw + 2hw + 2Lh$.

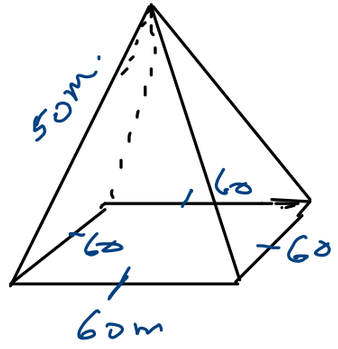
$2(3)(4) + 2(5)(4) + 2(3)(5)$

$24 + 40 + 30$

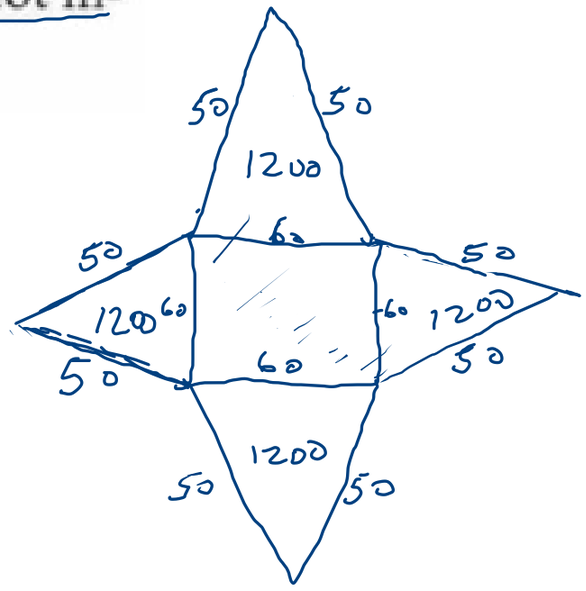
$94\ ft^2$

Pg 591

8. A right pyramid has a square base with sides 60 m long. The distance from one vertex on the base to the apex of the pyramid (along an edge) is 50 m. Determine the surface area of the pyramid (not including the base).

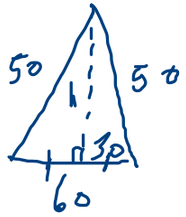


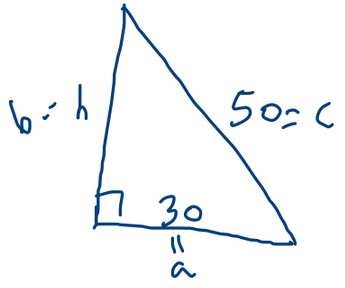
Break it down →



Game Plan: Find area of one Δ then multiply it by 4.

$A = \frac{1}{2}bh$.





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

$30^2 + h^2 = 50^2$

$900 + h^2 = 2500$

$-900 \quad -900$

$\sqrt{h^2} = \sqrt{1600} \rightarrow h = 40$

$A = \frac{1}{2}(60)(40)$

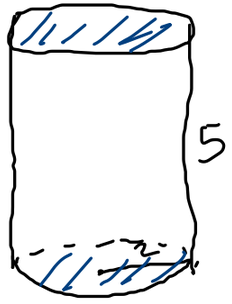
$= \frac{1}{2}(2400)$

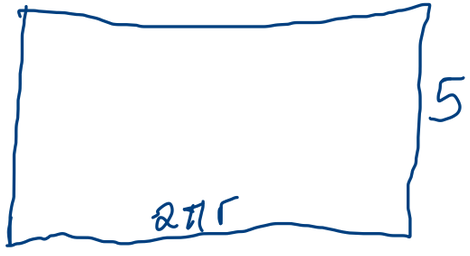
$A = 1200$

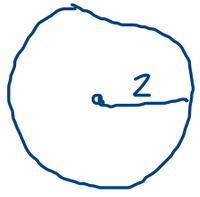
$4 \cdot 1200 = 4800$

SA: 4800 m^2

Ex Cylinder: Find the Surface area (not including the base) of a cylinder w/ radius 2cm and hight 5cm.







Surface Area of Cylinder (lateral Part).

$SA = (2\pi r)(5)$

$SA = (2\pi \cdot 2)(5)$

$SA = 4\pi \cdot 5$

$SA = 20\pi \text{ Cm}^2$.

$SA = 63 \text{ Cm}^2$.

If bases were included.

Side: 63.

Top & bottom: $2\pi r^2 = 2\pi(2)^2 = 8\pi = 25.1$.

Cone : PJ 591 Problem. 11

11. A cone is to be made from a circle of radius 3 cm (for the base) and a quarter-circle (for the lateral portion). Determine the radius of the quarter-circle.

We have two Pieces.

Circumference of bottom = $\frac{1}{4}$ Circumference of ~~Eraser~~ circle.

$2\pi(3) = \frac{1}{4} 2\pi r$

$6\pi = \frac{1}{2}\pi r$

$6 = \frac{1}{2} r$

$2(6) = 2(\frac{1}{2} r)$

$\boxed{12 = r}$

radius of quarter circle is 12.