

Chapter Review

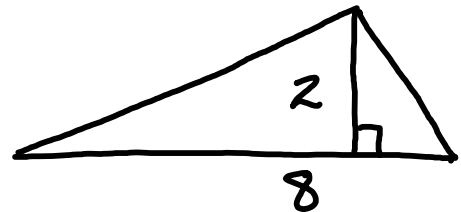


Area of Basic Figures

Triangle - $A = \frac{1}{2}bh$

$b = 8$ $h = 2$ $A = \frac{1}{2}(8)(2)$

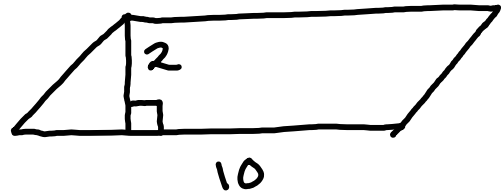
$A = 8$ units squared



Parallelogram - $A = bh$

$b = 10$ $h = 2$ $A = (10)(2)$

$A = 20$ units squared



Trapezoid - $A = \frac{1}{2}h(b_1 + b_2)$

$h = 3$

$b_1 = 5$

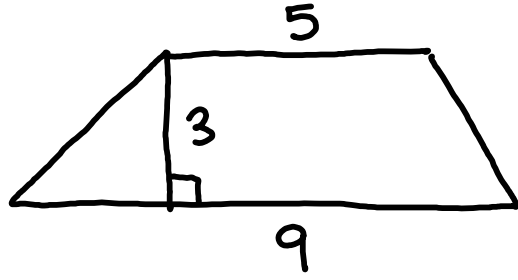
$b_2 = 9$

$A = \frac{1}{2}(3)(5 + 9)$

$= \frac{1}{2}(3)(14)$

$= (3)(7)$

$A = 21$ units squared



Surface Area of Basic Figures

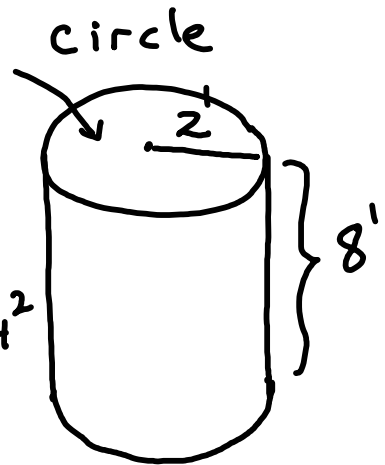
Cylinder - $SA = 2\pi rh + 2B$

Example $r = 2$ $h = 8$ $B =$ area of

$SA = 2\pi(2)(8) + 2\pi(2)^2$

$= 32\pi + 8\pi$

$= 40\pi$ or $40(3.14) \approx 125.6 \text{ ft}^2$



Prism - $SA = ph + 2B$

Example $p =$ perimeter of base

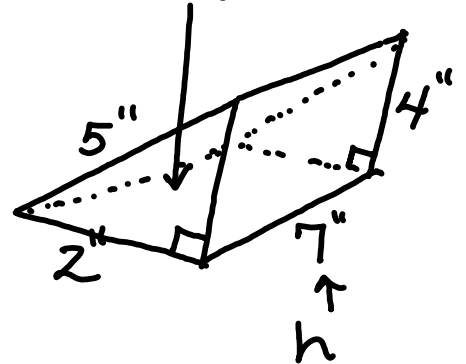
$p = 2 + 5 + 4 = 11$

$B = \frac{1}{2}(2)(4) = 4 \text{ in}^2$

$SA = (11)(7) + 2(4)$

$SA = 77 + 8 = 85 \text{ in}^2$

$B =$ area of base



Pyramid - $SA = n\left(\frac{1}{2}bl\right) + B$

Example

$$n = \# \text{ sides} = 4$$

$$l = \text{length of side} = 6$$

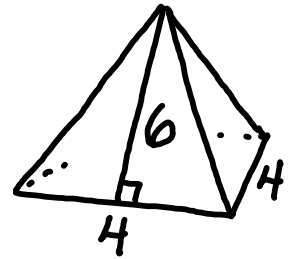
$$b = \text{length of base} = 4$$

$$B = \text{area of base}$$

$$B = (4)(4) = 16$$

$$SA = 4\left(\frac{1}{2} \cdot 4 \cdot 6\right) + 16$$

$$SA = 48 + 16 = 64 \text{ units squared}$$



Cone - $SA = \pi r l + B$

Example

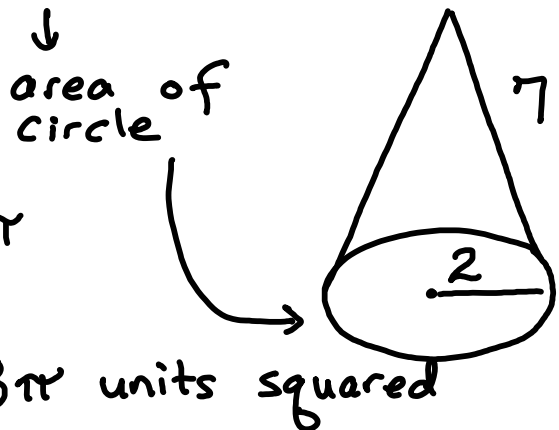
$$r = 2$$

$$l = 7$$

$$B = \pi(2)^2 = 4\pi$$

$$SA = \pi(2)(7) + 4\pi$$

$$SA = 14\pi + 4\pi = 18\pi \text{ units squared}$$



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

Example

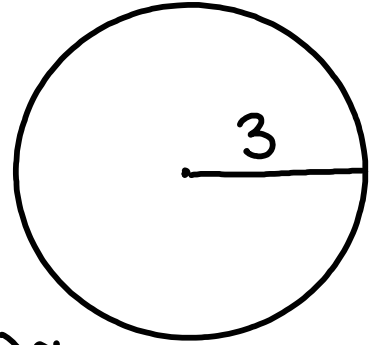
$$r = 3$$

$$SA = 4\pi(3)^2$$

$$= 4\pi \cdot 9$$

$$= 36\pi \text{ or } 36(3.14) \approx$$

113.04 units squared

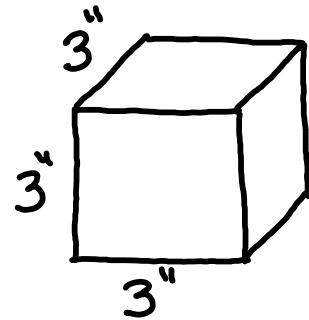


Volume of Basic Figures

Cube - $V = s^3$ $s = 3''$

Example

$$V = (3)^3 = 27 \text{ in}^3$$



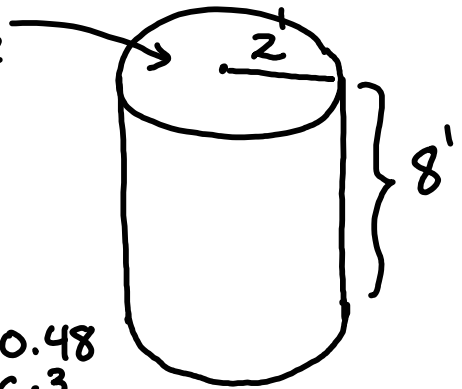
Cylinder - $V = Bh$ $B = \text{area of circle}$

Example

$$B = \pi(2)^2 = 4\pi$$

$$h = 8$$

$$V = (4\pi)(8) = 32\pi \approx 100.48 \text{ ft}^3$$



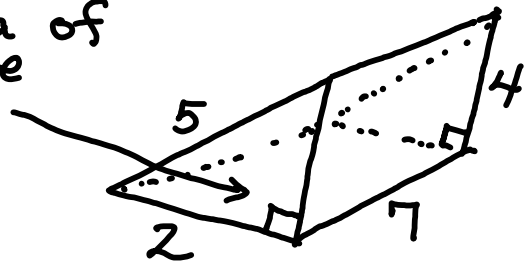
Prism - $V = Bh$ $B = \text{area of base}$

Example

$$B = \frac{1}{2}(2)(4)$$

$$h = 7$$

$$V = (4)(7) = 28 \text{ units cubed}$$



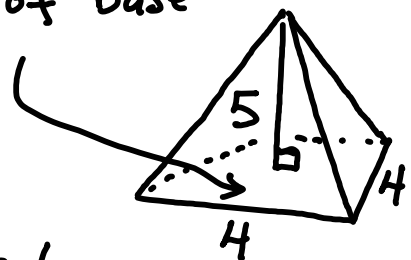
Pyramid - $V = \frac{1}{3}Bh$ $B = \text{area of base}$

Example

$$B = (4)(4) = 16$$

$$h = 5$$

$$V = \frac{1}{3}(16)(5) = \frac{80}{3} = 26.6 \text{ units cubed}$$



Cone -

$$V = \frac{1}{3}Bh \quad B = \text{area of circle}$$

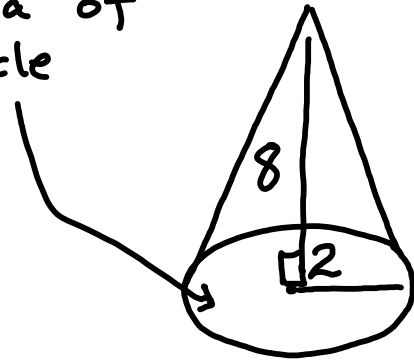
Example

$$B = \pi(2)^2 = 4\pi$$

$$h = 8$$

$$V = \frac{1}{3}(4\pi)(8)$$

$$V = \frac{32\pi}{3} \approx 33.49 \text{ units cubed}$$



Sphere -

$$V = \frac{4}{3}\pi r^3$$

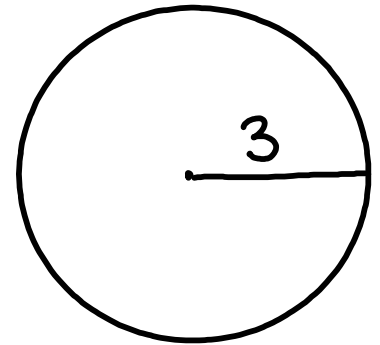
Example

$$r = 3$$

$$V = \frac{4}{3}\pi(3)^3$$

$$= \frac{4}{3}\pi(27)$$

$$= 4\pi(9) = 36\pi \approx 113.04 \text{ units cubed}$$

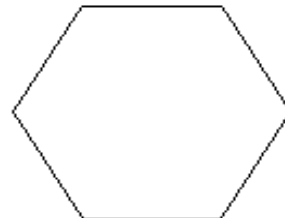
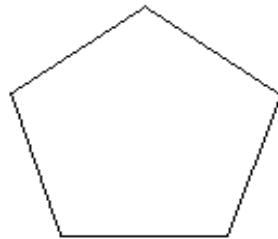
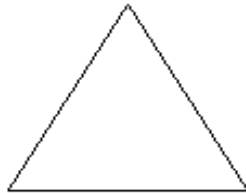




Area of Regular Polygons

regular polygons

equal angles, equal sides





Parts of a regular polygon

side

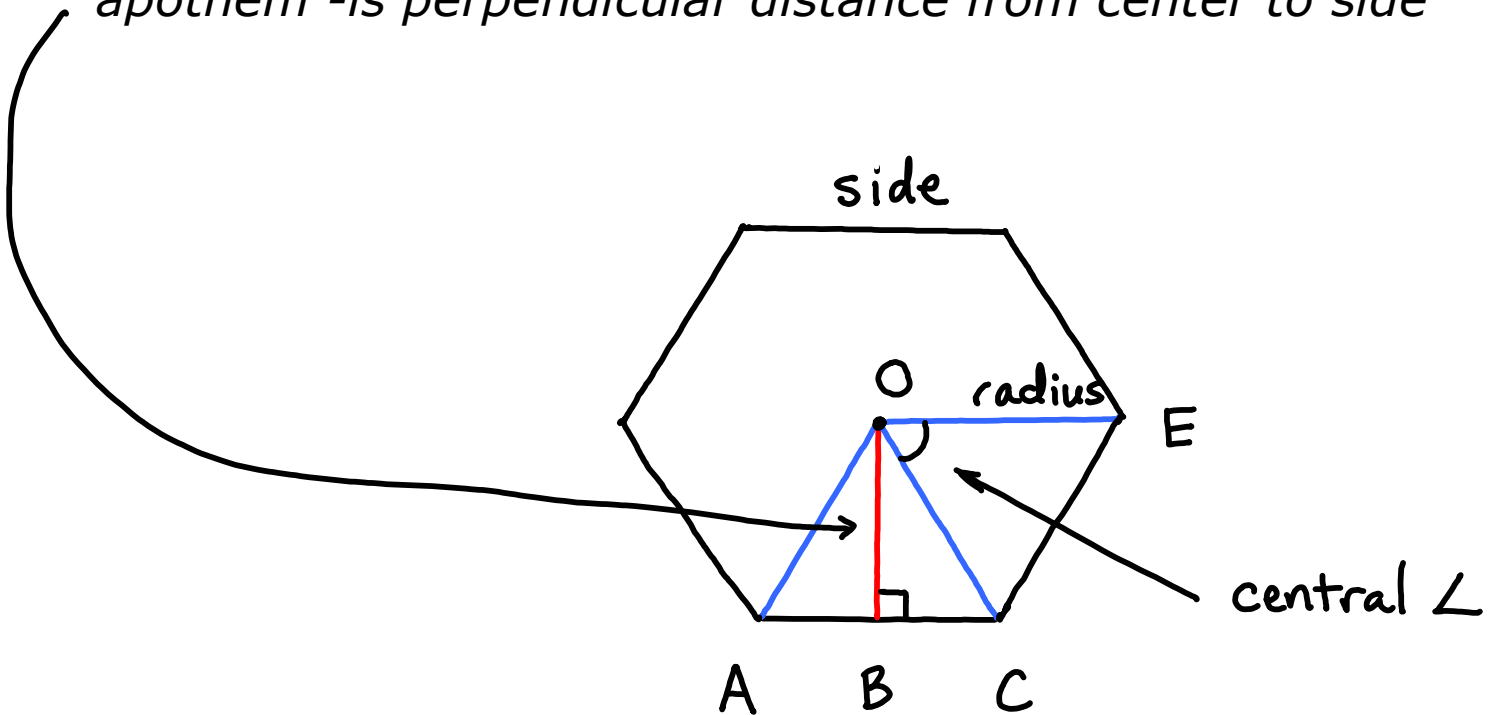
perimeter

center

radius - center to vertex

central angle - angle formed by two radii

apothem - is perpendicular distance from center to side



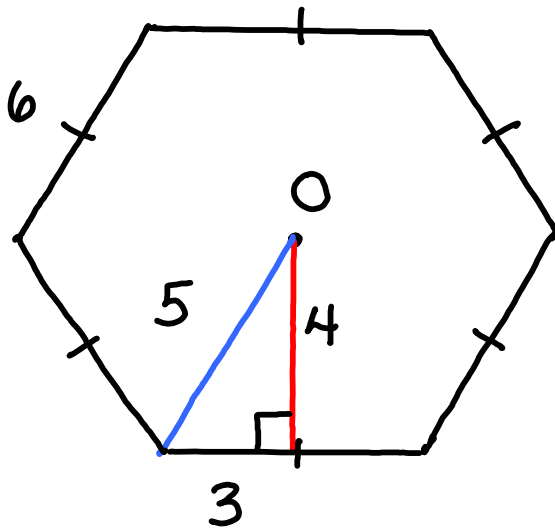
perimeter = sum of the sides



Area formula for a regular polygon

$$A = \frac{1}{2}ap$$

a = apothem
 p = perimeter



$a = 4$
side = 6
 $p = 36$

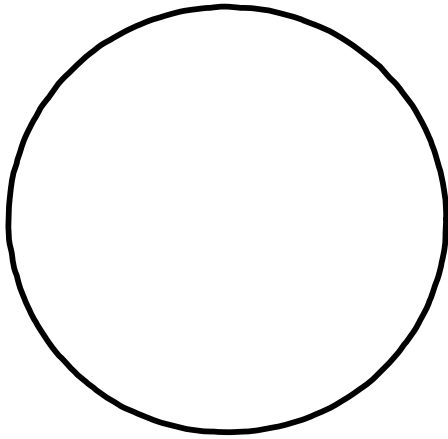
$$A = \frac{1}{2}ap$$

$$A = \frac{1}{2}(4)(36)$$

$$A = 72$$



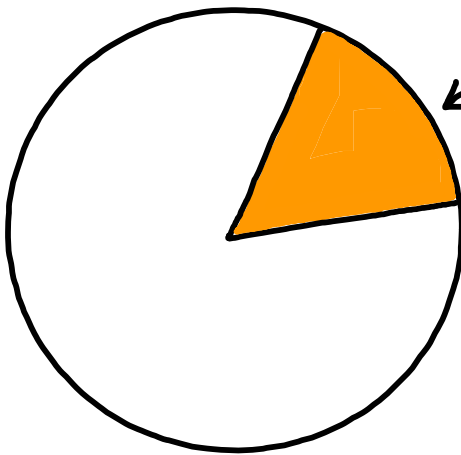
Area of Circles/Sectors and Arc Length



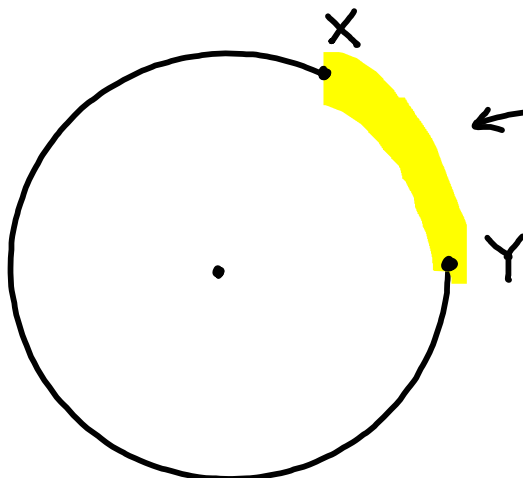
Circumference - perimeter of circle

$$C = d\pi$$

$$C = 2\pi r$$



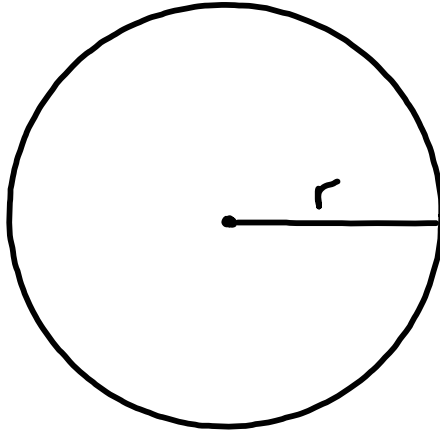
← **Sector**



← **Arc lengths**



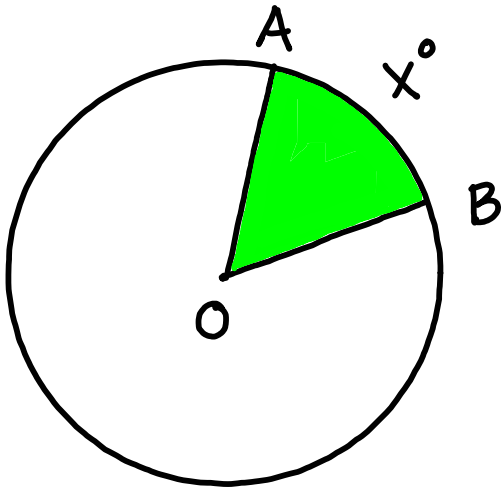
Area of Circles and Sectors



Area of Circle

$$A = \pi r^2$$

$r = \text{radius}$

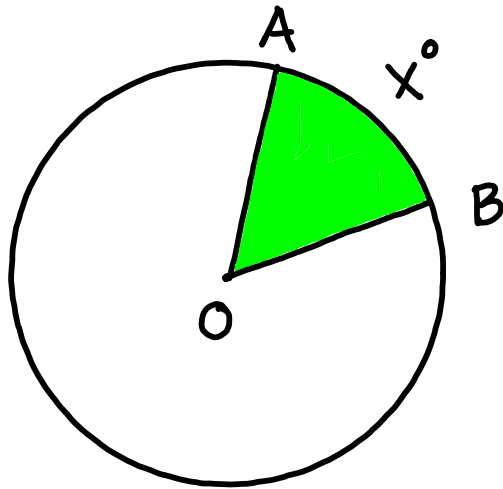


Area of Sector

$$\text{Area of sector AOB} = \frac{x^\circ}{360} \cdot \pi r^2$$



Finding Arc lengths of Circles



Arc lengths

$$\text{Length of } \widehat{AB} = \frac{x^\circ}{360} \cdot 2\pi r$$