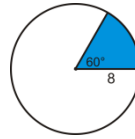


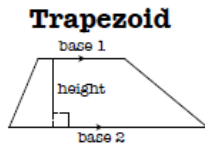
1. **Perimeter:**

- Length around outside of figure.
- Fencing, moldings, frame.
- Add all sides of a polygon.
- If shape is a circle use circumference $C = \pi d$
- **Circumference of a sector** $\frac{n^\circ}{360} (\pi d)$



2. **Area:** BASE AND HEIGHT must be perpendicular! (NO slant height in formula)

- Number of square units that fit inside of a 2 dimensional flat shape.
- Each shape has its own formula
- ****MEMORIZE:**

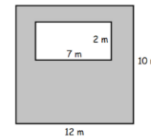


$$\text{Area} = \frac{1}{2} (b_1 + b_2) h$$

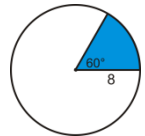
- ADD areas when shapes are next to each other



- SUBTRACT areas when shapes are inside of one another (shaded area)



- **Area of a circle sector:** $\frac{n^\circ}{360} (\pi r^2)$ where n is the number of degrees of the central angle.



3. **Volume:**

- **Polyhedron** a 3-D figure with POLYGON faces (study chart on my website)
- All formulas given
 - **PRISM:** 2 \cong parallel POLYGON **BASES**
 - Cylinder: 2 \cong parallel CIRCLE BASES
 - PYRAMID: POLYGON base with an APEX
 - (Polyhedron but **NOT** Prism)
 - Cone: CIRCLE base with an APEX
 - SPHERE: BALL
- Cavalieri's principle

Remember!
Cylinders, Cones, & Spheres are **NOT POLYHEDRON or PRISMS**

- If the area of the bases of a prism or cylinder are = and the heights are = then the volumes must be EQUAL

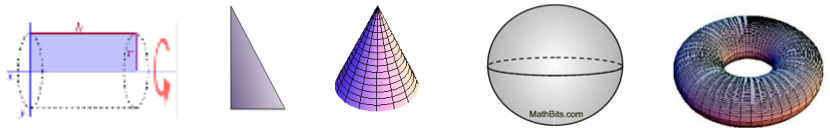
4. **Density:**

- In general, density is the ratio of the amount of something PER the space available.
- ****MEMORIZE:** $\text{Density} = \frac{\text{Mass}}{\text{Volume}}$



5. **SOLIDS OF REVOLUTION**

- Rectangle touching axis = cylinder
- Triangle touching axis = cone
- Semicircle touching axis = sphere
- Circle off axis = torus (donut)



6. **RETURNING CONCEPTS (RIGHT TRIANGLES)** SEE RIGHT TRIANGLES SUMMARY SHEET

- Pythagorean Theorem $a^2 + b^2 = c^2$ (use when 2 sides are known)
- TRIG sin, cos, tan (use when an angle and side is known)
- Special right triangles (use when 30°, 60°, 45° angles are present)