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| **Centers of Triangles** |  |
| *Review* | *Example* | *Practice* |
| * Centroid: Intersection of Medians
* Orthocenter: Intersection of Altitudes
* Incenter: Intersection of Angle bisectors
* Circumcenter: Intersection of perpendicular bisectors
 | This is the centroid because the segments are medians.C is the centroid of the triangle.If AC = 12, find the length of AF.AC is twice the length of CF, so CF =12/2 = 6Therefore, the length of AF is 12 + 6 = 18. | Identify the segments and the point of concurrency.1. Segment: \_\_\_\_\_\_\_\_\_\_\_

 Point: \_\_\_\_\_\_\_\_\_\_\_\_\_ 2. Segment: \_\_\_\_\_\_\_\_\_\_  Point: \_\_\_\_\_\_\_\_\_\_\_\_\_3. L is the centroid of the triangleFind the lengths:PO = \_\_\_\_\_\_\_\_ LQ = \_\_\_\_\_\_\_\_MP = \_\_\_\_\_\_\_\_ NQ = \_\_\_\_\_\_\_\_ |
| **Parallelograms** |
| Parallelograms:* Opposite sides are parallel and congruent.
* Opposite angles are congruent.
* Consecutive angels are supplementary.
* Diagonals bisect each other.
 | The following shapes are parallelograms. Solve for the variables.2x = 70 3x+5 = x+3yx = 35 3(35)+5 = (35)+3y 110 = 35+3y 75 = 3y 25 = y3x = 12 x + y = 5yx = 4 (4) + y = 5y 4 = 4y 1 = y | 1. The following shapes are parallelograms. Solve for the variables.2. |
| **Volume** |
| Know your area and volume formulas-Prism$$ V=Bh$$-Cylinder $V=πr^{2}h$-Pyramid $V=\frac{1}{3}Bh$-Cone $V=\frac{1}{3}πr^{2}h$-Sphere $V=\frac{4}{3}πr^{3}$ | Class notes | 1. Two spheres M and N have volumes of 250 cubic cm and 750 cubic cm respectively. Find the ratio of their radii.2. Two metal cubes with sides of 4 cm are melted and casted into a spherical ball. Findthe radius of sphere so formed.3. A cone has a volume of 317π cm3 and a height of 5 cm. Find the diameter of the base.4. You have been asked by your school to design a brick planter that will be used by classes to plant flowers. The planter will be built in the shape of a right rectangular prism with no bottom so water and roots can access the ground beneath. The exterior dimensions are to be $12 ft.$ $×$ $9 ft.$ $×2\frac{1}{2} ft$. The bricks used to construct the planter are $6 in.$ long, $3\frac{1}{2} in.$ wide, and $2 in.$ high. What is the volume of the bricks that form the planter? |
| **Cross sections** |
| Cross sections are the 2 dimension figure formed when cutting a 3 dimensional figure with a plane. |   | 1. If a square pyramid was cut parallel to its base, what shape would the cross section be?2. Which shape would have a circular cross section?  |
| **Rotations** |
| Rotations are the 3 dimensional figure formed when rotating a 2 dimension figure about an axis. |  What figure is formed when rotating the triangle about line *m*? Cone with a height  of 8 units and  radius of 4 units. | What figure is formed when rotating the rectangle about the line as shown?  |
| **Density** |
| Density:Density = quantity Volume | A block of wood 3 cm on each side has a mass of 27 g. What is the density of the block?v = l x w x hv = 3 cm x 3 cm x 3cmv = 27 cm3D = m/vD = 27 g / 27 cm3Density = 1 g/cm3 | 1. A wooden block has a mass of 562 g and a volume of 72 cm3. What is the density?2. A soda has a volume of 560 mL and a density of 3.2 g/mL. What is the mass? |