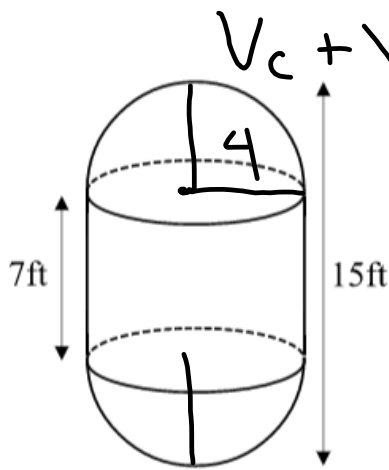


Bellwork: Find the volume of the shape below

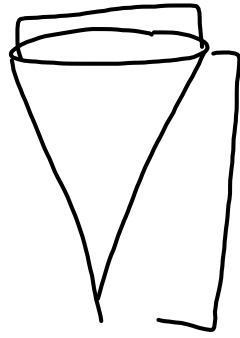


$$V_c + V_s = 351.86 + 268.08 = 619.94$$

$$V_c = \pi r^2 h = \pi (4)^2 (7)$$

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

12) $\frac{\frac{4}{3} \pi r^3}{\pi r^2} = \frac{\pi r^2 h}{\pi r^2}$ $\left(\frac{4}{3} r = h\right)$

13)  $\frac{1}{3} \pi r^2 h = \frac{4}{3} \pi r^3$
 $\frac{1}{3} \pi (2.25)^2 (11) = \frac{4}{3} \pi r^3$
 $\frac{1}{3} (2.25)^2 (11) = \frac{4}{3} r^3$
 $\frac{(2.25)^2 (11)}{4} = \frac{4r^3}{4}$

$$\sqrt[3]{r^3} = \sqrt[3]{3.921}$$

$$r = 2.41 \text{ cm}$$

Homework 6.4 Solutions

1. $V = 2144.66 \text{ cm}^3$

2. $V = 549.78 \text{ cm}^3$

3. $V = 2111.15 \text{ in}^3$

4. $V = 80 \text{ in}^3$

5. $r = 4.35 \text{ cm}$

6. $r = 1.18 \text{ cm}$

7. $h = 6.30 \text{ in}$

8. $p = 24 \text{ in}$

9. 619.94 ft^3

10. 384 cm^3

11. 848.23 ft^3

12. $h = \frac{4}{3}r$

13. $r = 2.41 \text{ cm}$

★ 14. $V = x^3 + 11x^2 + 39x + 45$

Lesson 6.5 Objectives

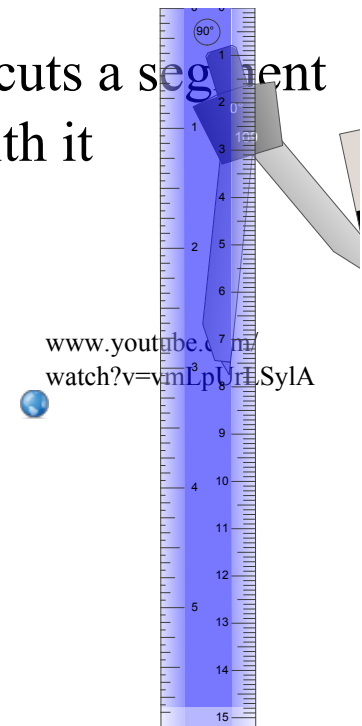
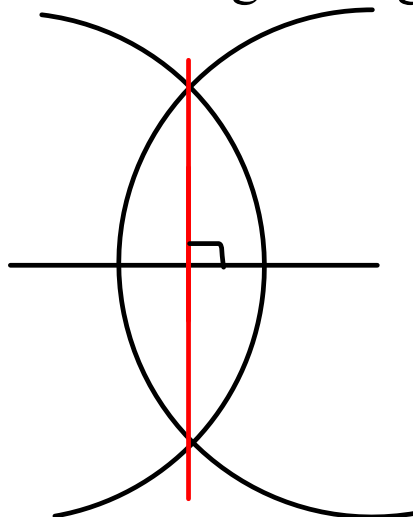
I can construct the following with a straightedge and compass:

- Circle circumscribed about a triangle (circumcircle)
- Circle inscribed in a triangle (incircle)
- A tangent line to a circle from a given exterior point

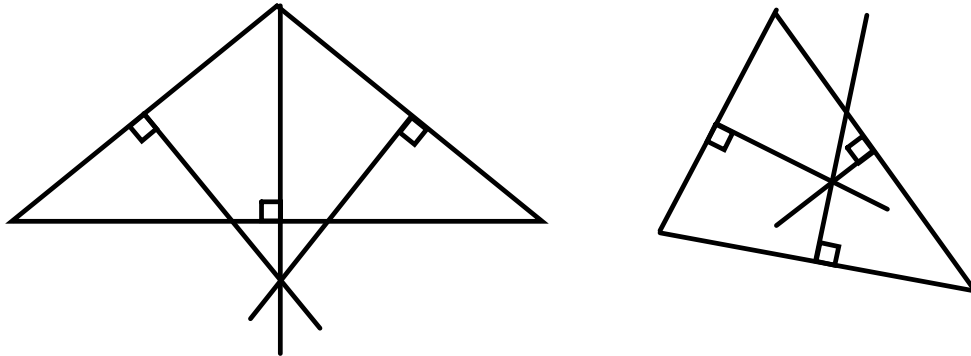
Rules of Geometric Construction

1. Constructions begin with at least two points, but can start with given constructed objects, such as lines, circles, or points
2. When drawing a circle with the compass, both ends of the compass must be placed on constructed points.
3. When drawing a line with the straightedge, the line must be drawn through 2 constructed points
4. A constructed point exists at the intersection of any lines and/or triangles

A **perpendicular bisector** is a line that cuts a segment in half and forms a 90 degree angle with it

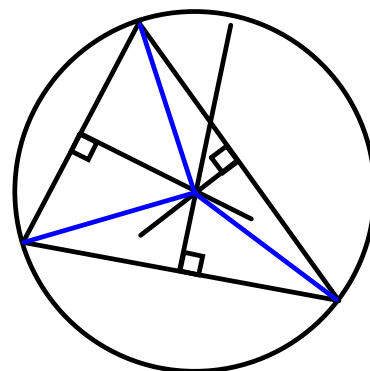
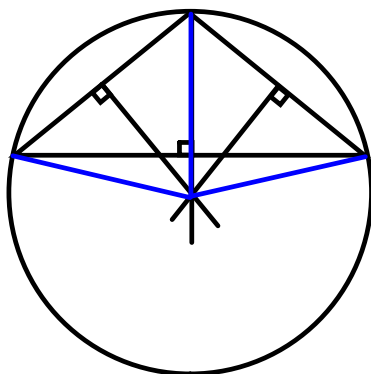


The **circumcenter** is the intersection of the perpendicular bisectors of a triangle

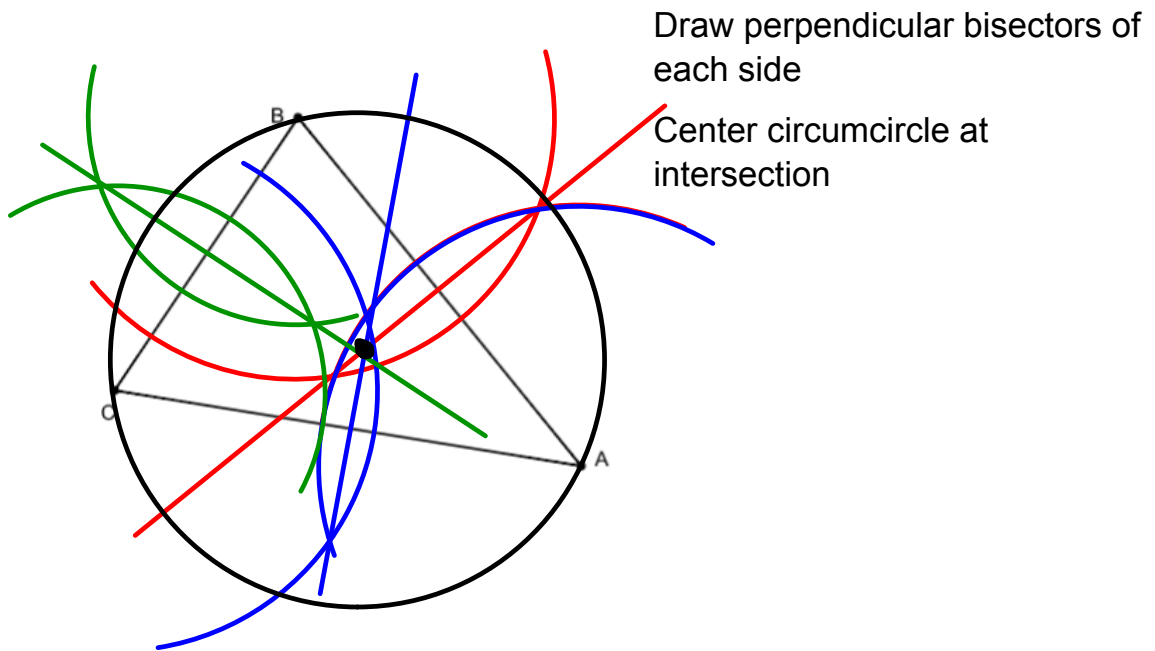


The circumcenter is equidistant from each vertex of the triangle, so it is the center of the **circumscribed circle**.

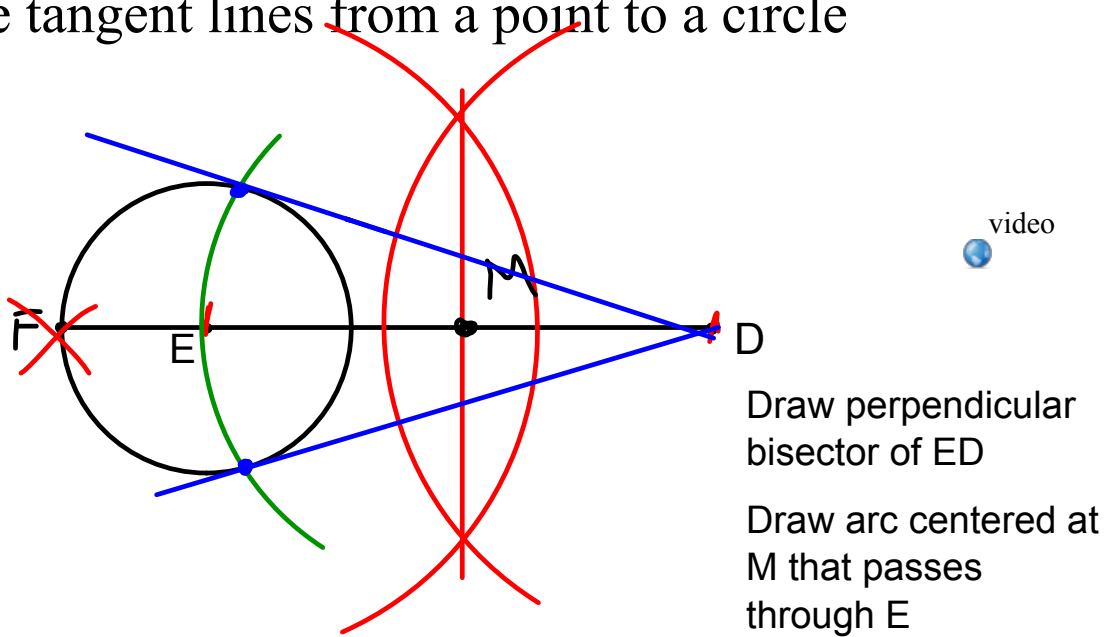
video 



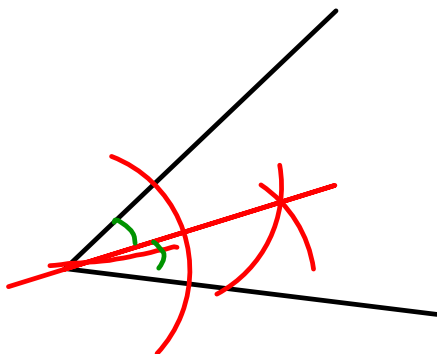
1. Construct the circumcircle.



The perpendicular bisector can also be used to find the tangent lines from a point to a circle

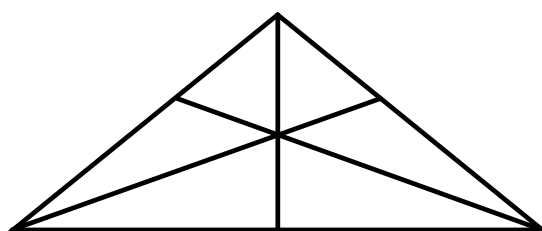


An **angle bisector** cuts an angle in two equal parts



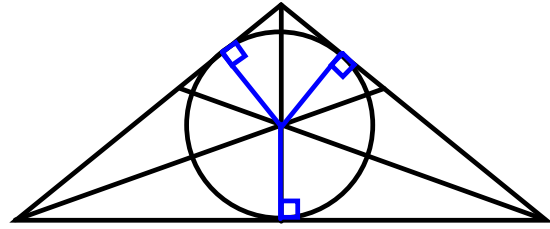
 video

The **incenter** of a triangle is the intersection of its angle bisectors



The incenter is equidistant from each side, so it is the center of the **inscribed circle**

video 

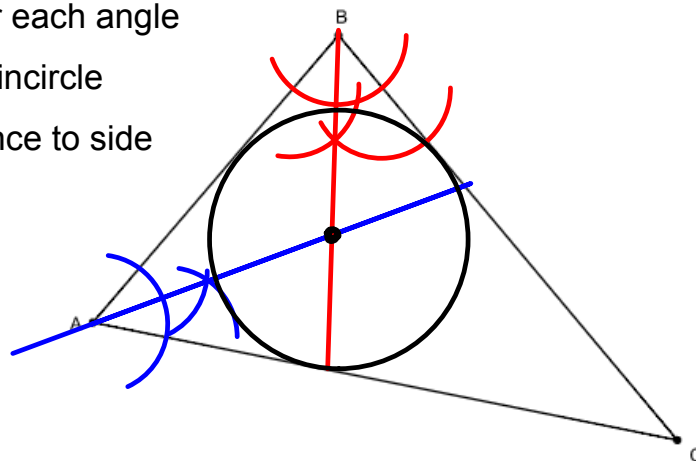


3. Construct the incircle.

Draw angle bisectors for each angle

Intersection is center of incircle

Radius is shortest distance to side from center



Attachments

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