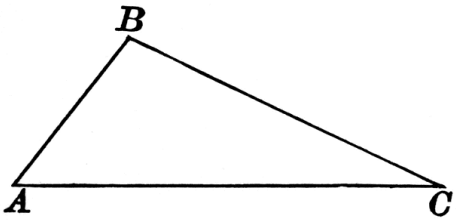
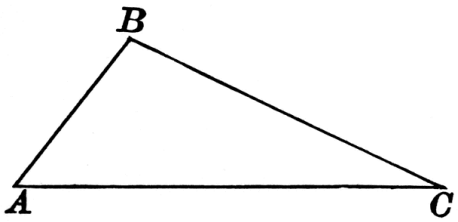
Name: _____ Date: _____

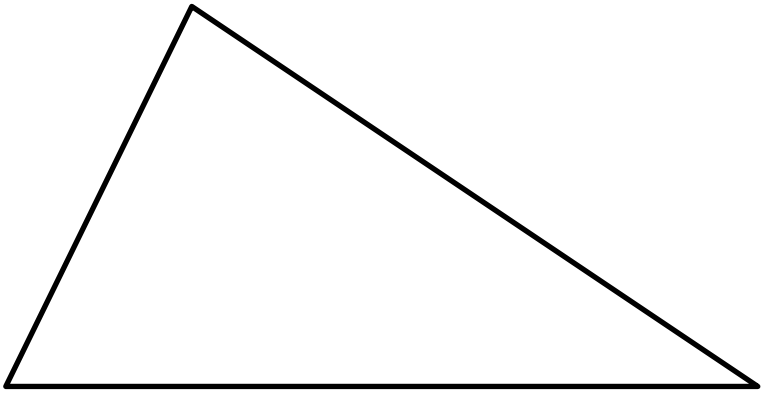
UNIT 1A **LESSON 9**

AIM: WHAT IS A POINT OF CONCURRENCY?

Do Now:

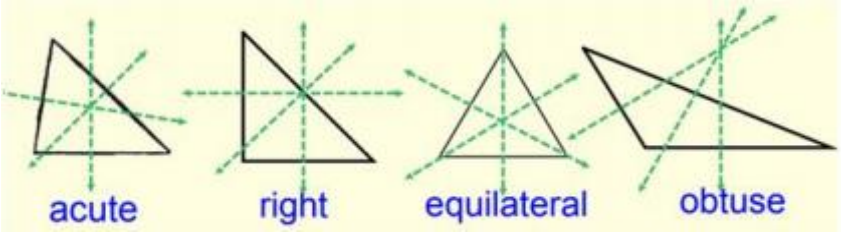
1. Bisect $\measuredangle BAC$ 	2. Construct the perpendicular bisector of $\overline{AC}$. 

1. Construct a perpendicular bisector for each side of the triangle below:

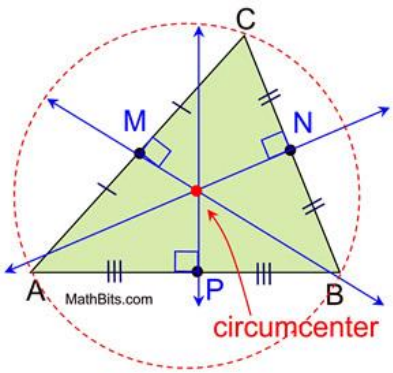


NOTES:

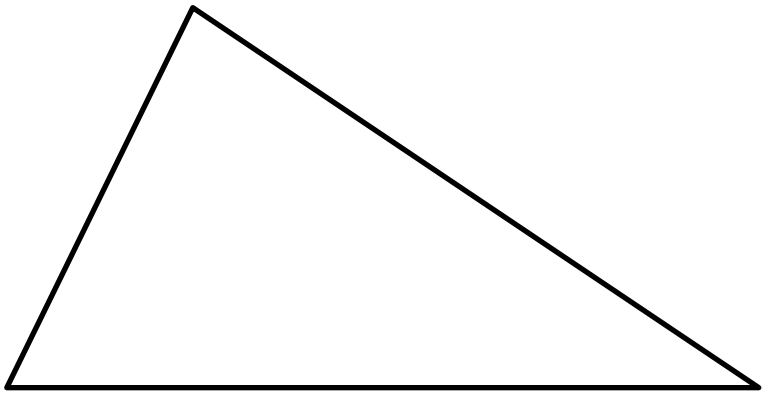
- Where three or more lines intersect is called a _____ _____ _____.
- The point of intersection for the 3 perpendicular bisectors is called the _____.
- The circumcenter is the center of the _____ circle around the triangle. The circle touches all 3 vertices of triangle.
- Circumscribed means to draw _____ the outside of a shape.
- Depending on the triangle, the circumcenter can end up on or outside the triangle, as shown below:



2. Given triangle ABC below, point *P* is the circumcenter, what can you conclu

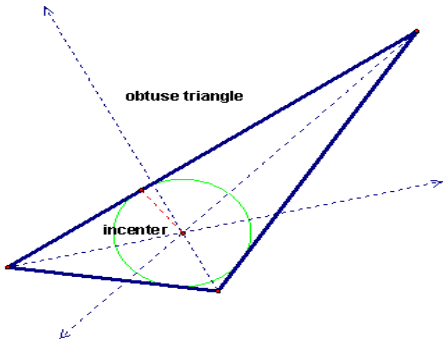


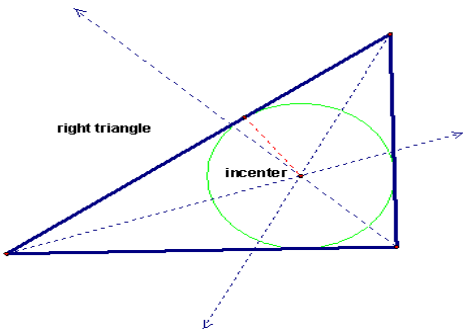
3. Construct an angle bisector for each angle in the triangle below:

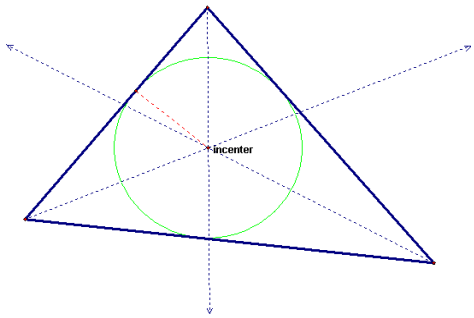


NOTES:

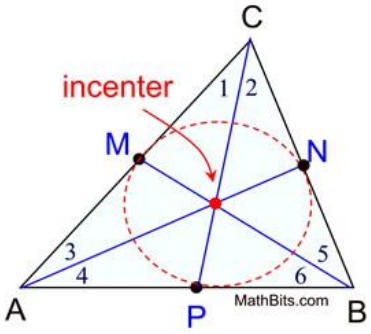
- The point of intersection for the 3 angle bisectors is called the _____.
- The incenter is the center of the _____ circle inside the triangle. The circle touches all 3 vertices of triangle.
- Inscribed means to draw _____ of a shape.
- Regardless of the triangle, the INcenter will always be INside, as shown below:







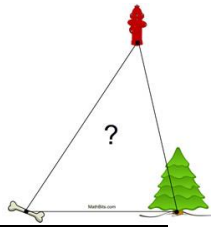
4. Given triangle ABC below, point *P* is the incenter what can you conclude?



5. A point equally distant from the three sides of a triangle is the intersection of the triangle's _____.

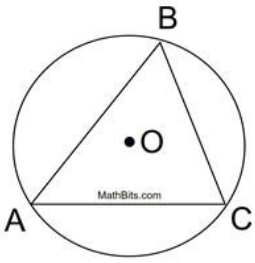
a) Altitudes
b) Medians
c) perpendicular bisectors of the side
d) Angle bisectors

6. Fido wants to place his dog house equally spaced from a fire hydrant, his favorite tree, and the dirt mound where he buried his favorite bone, as displayed by the triangle shown at the right. In relation to this triangle, Fido should place his dog house _____.



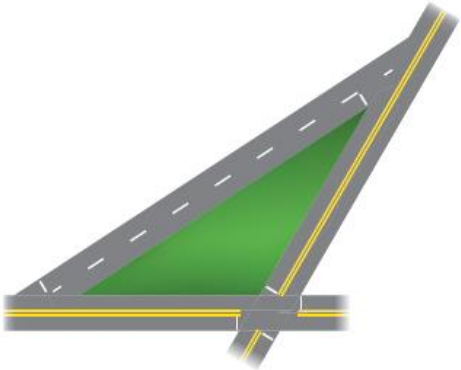
a) at the center of an inscribed circle.
b) at the center of a circumscribed circle.
c) at the intersection of the triangle's medians.
d) at the intersection of the triangle's altitudes.

7. Point *O* is the center of the circle circumscribing Δ*ABC*. Point *O* is the intersection of the _____ of the triangle.

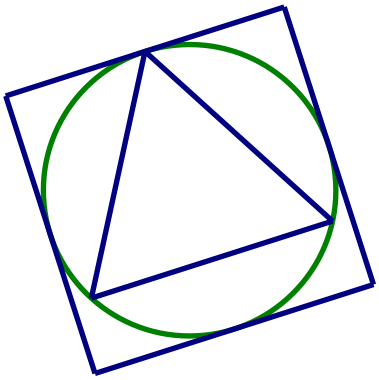


a) angle bisectors
b) altitudes
c) perpendicular bisectors of the sides
d) medians

8. A city wants to place a lamppost on the boulevard shown so that the lamppost is the same distance from all three streets. Should the location of the lamppost be at the *circumcenter* or *incenter* of the triangular boulevard? Explain.



9. Circle the correct relationship.



a) Relationship between the circle and the triangle:

The triangle is: inscribed / circumscribed

b) Relationship between the circle and square:

The square is: inscribed / circumscribed

c) Relationship between the square and the triangle:

The triangle is: inscribed / circumscribed

Name: _____ Date: _____

UNIT 1A **LESSON 9**

EXIT TICKET

You are placing a fountain in a triangular koi pond. You want the fountain to be the same distance from each edge of the pond. Where should you place the fountain? Construct your answer response.