

Name:

Date:

Period: 1

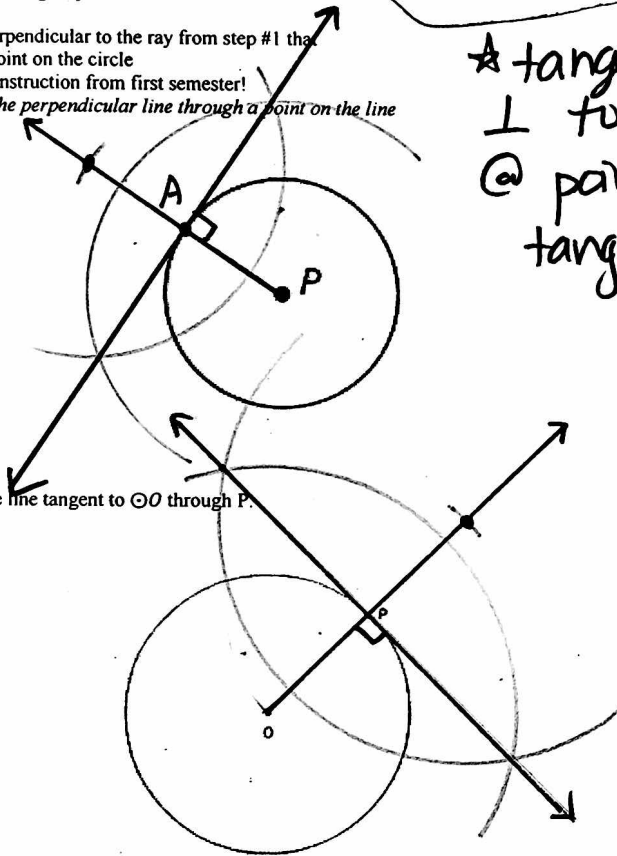
Constructions with Circles

Lesson Objective: INBAT construct tangent lines to
 65. a $\odot$ thru 3 noncollinear points, a
 square inscribed in a $\odot$

Construction #1: Tangent to a circle at a point on the circle

1. Draw the ray that extends from the center of the circle through the point of tangency.
2. Construct a line perpendicular to the ray from step #1 that goes through the point on the circle.
 - a. This is a construction from first semester!
 Construct the perpendicular line through a point on the line

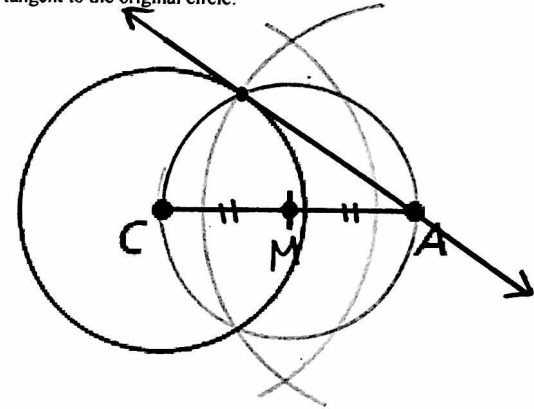
Now you try! Construct the line tangent to $\odot O$ through P.



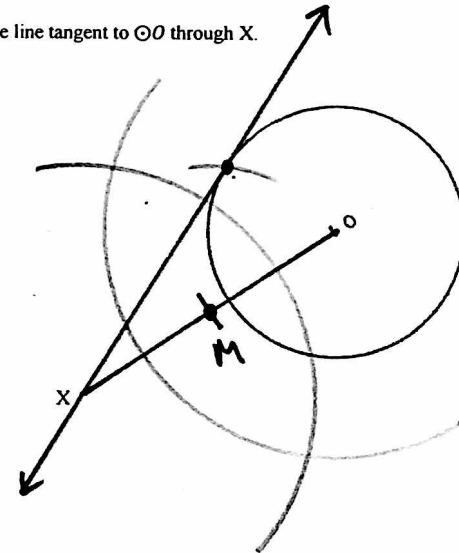
★ tangent is
 $\perp$ to radius
 @ point of tangency

Construction #2: Tangent to a circle through a point outside the circle

1. Draw the segment whose endpoints are the center of the circle and the point outside the circle.
2. Construct the midpoint of the segment from step #1. Label this point.
3. Construct the circle whose center is the midpoint from step #2, and goes through the endpoints of the segment from step #1.
 - a. This circle will intersect the original circle twice. Label one of these points.
4. Draw the line that goes through the intersection point from step #3 and the original point outside the circle.
 - a. This line is tangent to the original circle!



Now you try! Construct the line tangent to $\odot O$ through X.



★ YouTube links on calendar!

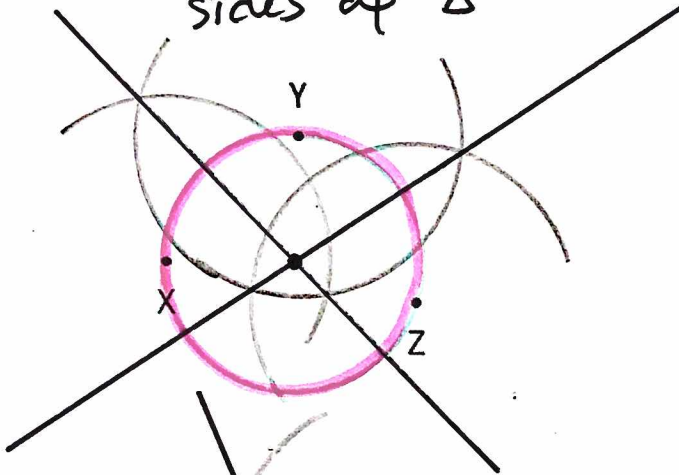
Construction #3: A circle through three non-collinear points

Technically we have already done this construction this school year...

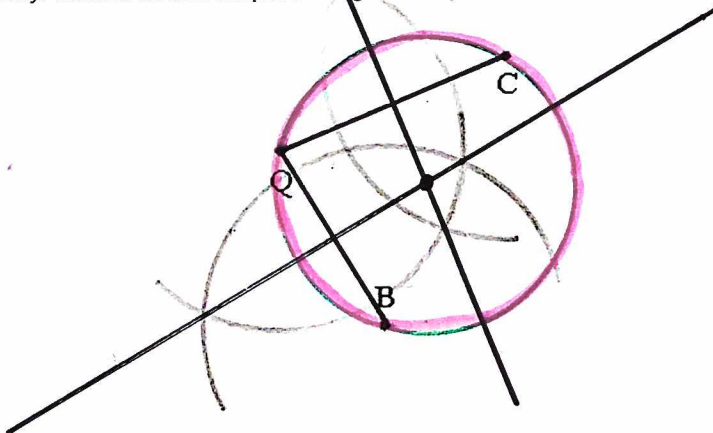
Three non-collinear points will make a triangle.

What point in the triangle will have a circle that passes through all three vertices?

*Ch 6: circumcenter!
construct $\perp$ bisectors of 2/3
sides of Δ



Now you try! Construct the circle that passes through all three points below.

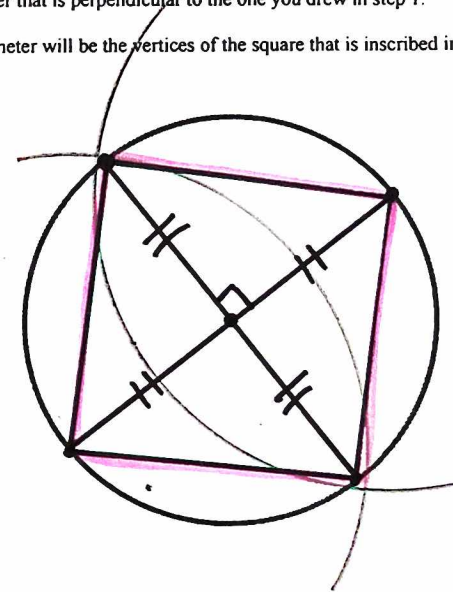


Construction #4: A square inscribed in a circle

This incorporates some of yesterday's lesson objective.

*diags. of a
square are
 $\cong$ and $\perp$

1. Construct a diameter of the circle.
2. Construct a second diameter that is perpendicular to the one you drew in step 1.
3. The endpoints of each diameter will be the vertices of the square that is inscribed in the circle.



Now you try! Construct a square inscribed in the circle below.

