Name: _____ Date: _____

# TI-Nspire Technology Lesson

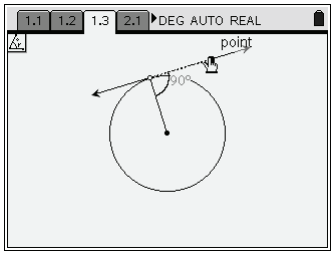
## Unit 8: Verifying the Tangent and Chord Properties

On your calculator, press (home) > **7: My Documents**, then open file **u08_400**.

### Verifying the Tangent Property

On page 1.3, a tangent to the circle and a radius from the point of tangency to the centre of the circle are shown.

**1.** Measure the angle the radius makes with the tangent.




- Press (menu), then select **7: Measurement > 4: Angle.**
- Click on the centre of the circle, then on the point of tangency, and finally on the tangent line.
- Press (esc).

Does the angle measure match what you have learned about a tangent and radius? If not, suggest a reason why.

**Yes, it is 90°.**

**2.** Drag the point of tangency to different positions on the circle to check the results for other tangent lines.
What do you notice?

**The angle is always 90°.**

**3.** Drag the circle to investigate the property for circles of different sizes.
What is always true about the angle between a tangent to a circle and a radius at the point of tangency?

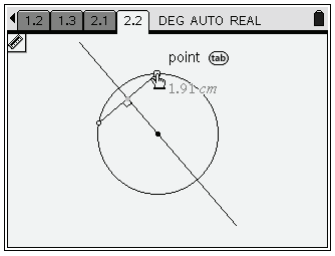
**The angle is always 90°.**

## Verifying the Chord Property

On page 2.2, a chord in a circle and a line perpendicular to the chord, through the centre of the circle are shown.

**1.** For each endpoint of the chord, measure the distance from the endpoint to the point of intersection of the chord and the perpendicular.

- Press (menu), then select **7: Measurement > 1: Length.**
- Click on the point of intersection, then double-click on an endpoint of the chord.
- Click on the point of intersection, then double-click on the other endpoint of the chord.
- Press (esc).




What do you notice?

**The two distances are equal.**

**2.** Drag the endpoints of the chord to different positions on the circle to check the results for other chords.
What do you notice?

**The distances change, but they are always equal.**

**3.** Drag the circle to investigate the property for circles of different sizes. What is always true about a perpendicular from the centre of a circle to a chord in the circle?

**The perpendicular bisects the chord.**

# Additional Teacher Notes

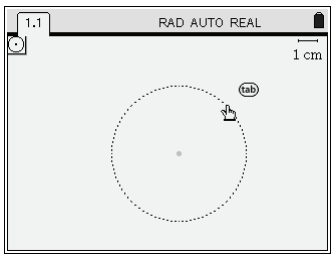
Performing constructions related to this technology lesson on a TI-Nspire

To insert a graphs & geometry page:

- Press (home) > **2: Graphs & Geometry**.
  Press (menu), then select **2: View** > **2: Plane Geometry View.**

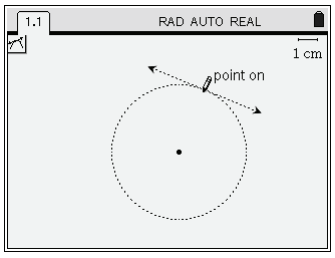
To construct a circle:

- Press (menu), then select **8: Shapes** > **1: Circle.**
- Move the cursor to the centre of the page, click once to place the centre of the circle, then move the cursor and click a second time to indicate the size of the circle.
- To move the circle, drag the centre of the circle.
  To resize the circle, drag the circle.



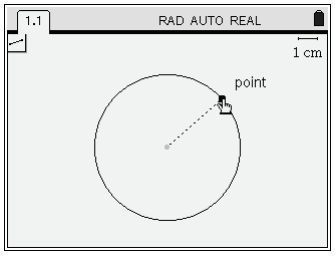

To construct a tangent to a circle:

- Press (menu), then select **6: Points & Lines > 7: Tangent.**
- Hover the cursor over the circle, then click once.



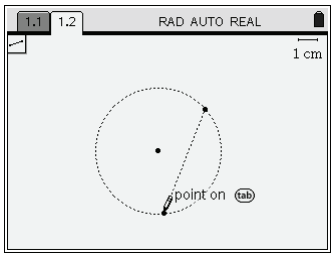

To construct a radius of a circle:

- Press (menu), then select **6: Points & Lines > 5: Segment.**
- Click on the centre of the circle and a point on the circle.




To construct a chord in a circle:

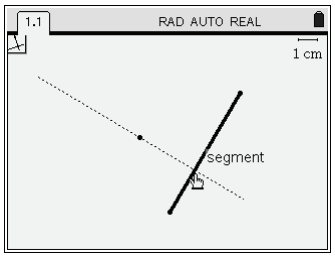
- Press (menu), then select **6: Points & Lines > 5: Segment.**
- Hover the cursor over the circle, then click once.
  Hover the cursor over a different part of the circle, then click a second time.



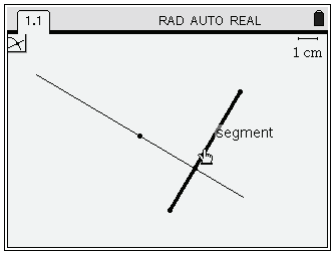
To construct a line perpendicular to a line segment and through a point:

- Press menu, then select **9: Construction > 1: Perpendicular.**
- Click on the point and the line segment.



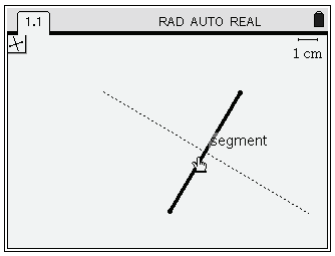

To construct a point of intersection of 2 objects:

- Press menu, then select **6: Points & Lines > 3: Intersection Point(s).**
- Click on both objects.




To construct the perpendicular bisector of a line segment:

- Press menu, then select **9: Construction > 3: Perpendicular Bisector.**
- Click on the line segment.




To construct the midpoint of a line segment:

- Press menu, then select **9: Construction > 5: Midpoint.**
- Click on the line segment.