**Unit 6: Circles Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Day 6 Tangent Lines (PH 11-1) Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_Hour: \_\_\_**

A ***tangent*** to a circle is a line in the plane of the circle that intersects

the circle in exactly one point.

The point where the circle and tangent intersect is called the ***point of tangency***.

**Theorem 11-1**

If a line is tangent to a circle, then the line is perpendicular to the radius drawn to the point of tangency.

**Example 1:** $\overleftrightarrow{BA}$ is tangent to ʘ*C* at point *A*. Find the value of *x*.

**Example 2:** A belt fits tightly around two circular pulleys, as shown below. Find the distance between the centers of the pulleys. Round your answer to the nearest tenth.



**Theorem 11 – 2**

If a line in the plane of a circle is perpendicular to a radius at its endpoint on the circle, then the line is tangent to the circle.

**Example 3:** ʘ*O* has radius 5. Point *P* is outside ʘ*O* such that *PO* = 12, and point *A* is on ʘ*O* such that *PA* = 13. Is *PA* tangent to ʘ*O* at *A*? Explain.

 Sketch a picture:

 Explain:

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