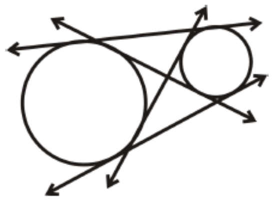
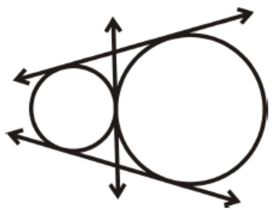
Geometry 9.1 *(updated. 9/30/14)*

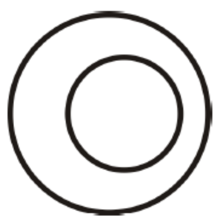
1. diameter
2. secant
3. chord
4. point of tangency
5. common external tangent
6. common internal tangent
7. center
8. radius
9. the diameter
10. 4 lines



11. 3 lines



12. none



13. radius of $\odot B = 4$, radius of $\odot C = 5$, radius of $\odot D = 2$, radius of $\odot E = 2$
14. $\odot D \cong \odot E$ because they have the same radius length.
15. 2 common tangents
16. $CE = 7$
17. $y = x - 2$
18. yes
19. no
20. yes
21. $4\sqrt{10}$
22. $4\sqrt{11}$
23. $x = 9$
24. $x = 3$
25. $x = 5$
26. $x = 8\sqrt{2}$
27.
    a. Yes, by AA. $m\angle CAE = m\angle DBE = 90^\circ$ and $\angle AEC \cong \angle BED$ by vertical angles.
    b. $BC = 37$
    c. $AD = 35$
    d. $m\angle C = 53.1^\circ$
28. See the following table:

TABLE 9.1:

Statement	***Reason***
1. $\overline{AB}$ and $\overline{CB}$ with points of tangency at A and C. $\overline{AD}$ and $\overline{DC}$ are radii.	Given
2. $\overline{AD} \cong \overline{DC}$	All radii are congruent.
3. $\overline{DA} \perp \overline{AB}$ and $\overline{DC} \perp \overline{CB}$	Tangent to a Circle Theorem
4. $m\angle BAD = 90^\circ$ and $m\angle BCD = 90^\circ$	Definition of perpendicular lines
5. Draw $\overline{BD}$.	Connecting two existing points
6. $\triangle ADB$ and $\triangle DCB$ are right triangles	Definition of right triangles (Step 4)
7. $\overline{DB} \cong \overline{DB}$	Reflexive PoC
8. $\triangle ABD \cong \triangle CBD$	HL
9. $\overline{AB} \cong \overline{CB}$	CPCTC

29.

a. kite
b. center, bisects

30. $\overline{AT} \simeq \overline{BT} \simeq \overline{CT} \simeq \overline{DT}$ by theorem 10-2 and the transitive property.
31. 9.23
32. $\frac{8}{\sqrt{3}}; \frac{8}{3\sqrt{3}}$
33. Since $\overleftrightarrow{AW}$ and $\overleftrightarrow{WB}$ both share point W and are perpendicular to $\overline{VW}$ because a tangent is perpendicular to the radius of the circle. Therefore A, B and W are collinear. $\overline{VT} \cong \overline{VW}$ because they are tangent segments to circle A from the same point, V, outside the circle. Similarly, $\overline{VW} \cong \overline{VU}$ because they are tangent segments to circle B from V. By the transitive property of congruence, $\overline{VT} \cong \overline{VU}$. Therefore, all three segments are congruent.