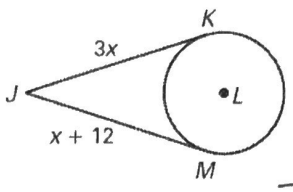
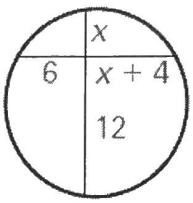
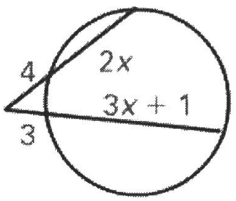
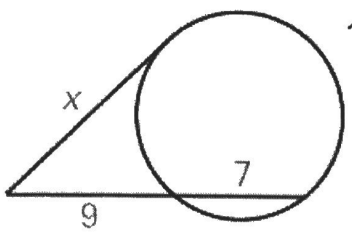
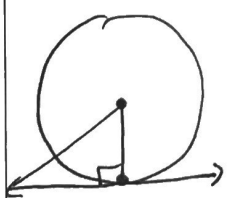
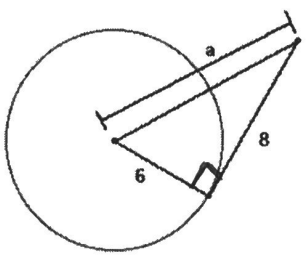
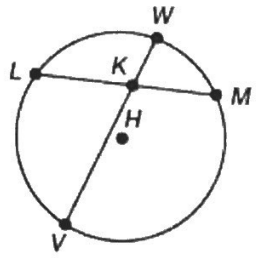
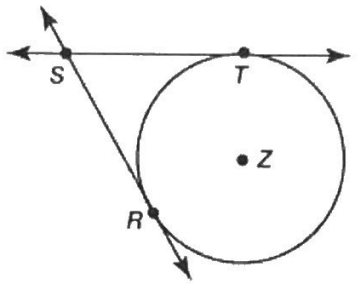
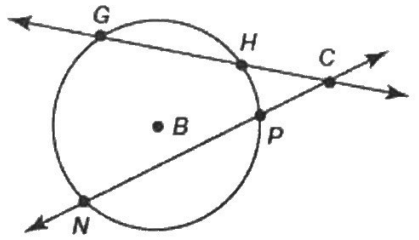
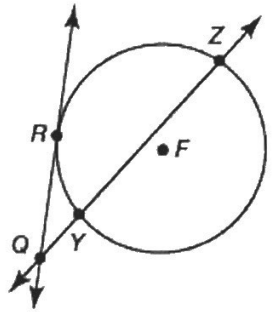
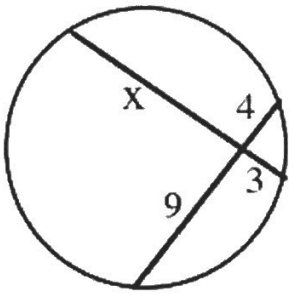
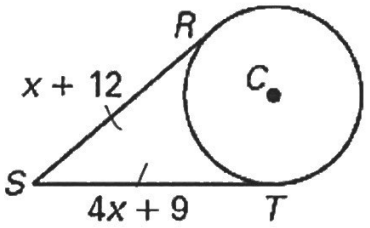
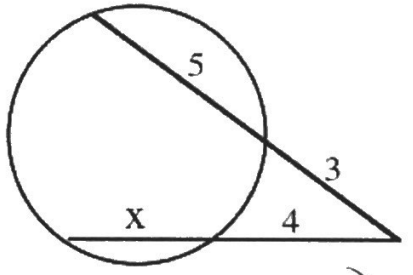
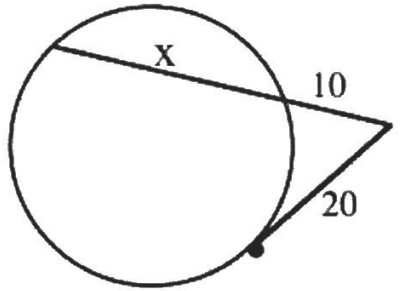
The Segment Theorems Graphic Organizer

Let's summarize the theorems relating to tangents, chords, and secants. Use the information from the previous task to complete the graphic organizer.

Picture	Type	Theorem	Example
	2 tangents	2 tangents that meet at a point outside the ⊙ are ≅.	Find **JK**  $3x = x+12$ $2x = 12$ $x = 6$ $JK = (6)(3)$ = 18
	2 chords	Pop = Pop Product of Pieces	Solve for **x**.  $6(x+4) = x(x+12)$ $6x+24 = x^2+12x$ $24 = 6x$ $4 = x$
	2 secants	OW = OW outside (whole)	Find the value of **x**.  $4(4+2x) = 3(3+3x+1)$ $16+8x = 3(4+3x)$ $16+8x = 12+9x$ $x = 4$
	1 secant 1 tangent	OW = OW	Find the value of **x**.  $x^2 = 9(9+7)$ $x^2 = 9(16)$ $x^2 = 144$ $x = 12$
	radius and tangent line	a radius @ the point of tangency forms a 90° angle	Find the value of a.  $6^2+8^2 = a^2$ $36+64 = a^2$ $100 = a^2$ $10 = a$

Finding Segment Lengths with Circles

What type of segments do you see?

Two Chords	Two Tangents	Two Secants	Secant & Tangent
			
$WK \cdot VK = LK \cdot MK$ $P_{OP} = P_{OP}$ *Part • Part = Part • Part*	$ST = SR$ ~~$OW = OW$~~ *Tangent = Tangent*	$CH \cdot CG = CP \cdot CN$ $OW = OW$ *Ext Secant • Whole Secant = Ext Secant • Whole Secant*	$(QR)^2 = QY \cdot QZ$ $OW = OW$ *(Tangent)² = External Secant • Whole Secant*
 $X(3) = 9(4)$ $3x = 36$ $x = 12$	 $X+12 = 4x+9$ $3 = 3x$ $1 = x$	 $4(x+4) = 3(5+3)$ $4x+16 = 24$ $4x = 8$ $x = 2$	 $(20)^2 = 10(x+10)$ $400 = 10x + 100$ $300 = 10x$ $30 = x$