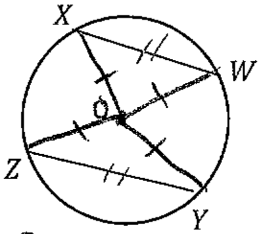
Key #4 correction

Chapter 9 Proofs Practice

1) Given: $WX = YZ$

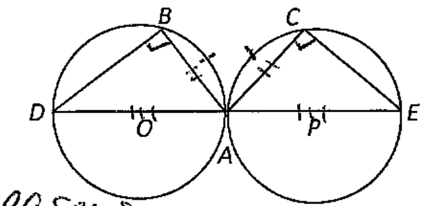
Prove: $\widehat{WX} \cong \widehat{YZ}$



Statements	Reasons
1) $WX = YZ$	1) Given
2) $OX = OZ$ $OW = OY$	2) radii of a ⊙ are ≅
3) $\triangle OXW \cong \triangle OZY$	3) SSS
4) $\angle XOW \cong \angle ZOY$	4) CPCTC
5) $\widehat{WX} \cong$ ~~m∠XOW~~ $\widehat{YZ}$	5) in a ⊙, 2 minor arcs are ≅ iff their central ∠'s are ≅

2) Given: Circle O ≅ circle P; $\widehat{AC} \cong \widehat{AB}$

Prove: $\Delta ABD \cong \Delta ACE$

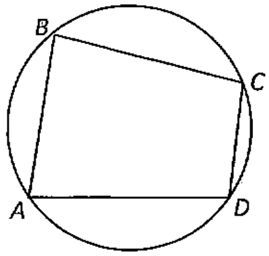


HL

Statements	Reasons
1) ⊙O ≅ ⊙P; $\widehat{AC} \cong \widehat{AB}$	1) Given
2) $\overline{DA} \cong \overline{AE}$	2) diameters of ≅ ⊙'s are ≅
3) $\overline{AB} \cong \overline{AC}$	3) in ≅ ⊙'s ≅ arcs have ≅ chords
4) $m\angle B = 90$, $m\angle C = 90°$	4) ∠ intercepting a semi-circle is a Rt. ∠
5) △ABD and △ACE are Rt. △'s	5) def of rt. △'s
6) $\Delta ABD \cong \Delta ACE$	6) HL

3) Given: ABCD is inscribed in circle P

Prove: $\measuredangle A$ is supplementary to $\measuredangle C$
$\measuredangle B$ is supplementary to $\measuredangle D$

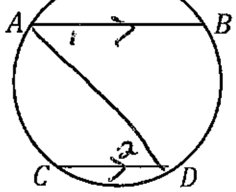


$\measuredangle A = \frac{1}{2}\ \widehat{BCD}$
$\measuredangle C = \frac{1}{2}\ \widehat{BAD}$

Statements	Reasons
1) ABCD is inscribed in $\odot P$	1) Given
2) $m\measuredangle A = \frac{1}{2} m\widehat{BCD}$ $m\measuredangle C = \frac{1}{2} m\widehat{BAD}$ $m\measuredangle B = \frac{1}{2} m\widehat{ADC}$ $m\measuredangle D = \frac{1}{2} m\widehat{ABC}$	2) measure of an inscribed $\measuredangle = \frac{1}{2}$ intercepted arc
3) $m\widehat{BCD} + m\widehat{BAD} = 360$ $m\widehat{ADC} + m\widehat{ABC} = 360$	3) Arc Addition Post. (Circles = 360°)
4) $\frac{1}{2}(m\widehat{BCD} + \frac{1}{2} m\widehat{BAD} = 180$ $\frac{1}{2} m\widehat{ADC} + \frac{1}{2} m\widehat{ABC} = 180$	4) multiplication
5) $m\angle A + m\measuredangle C = 180$ $m\measuredangle B + m\measuredangle D = 180$	5) Substitution
6) $\measuredangle A$ suppl. to $\measuredangle C$; $\measuredangle B$ suppl. to $\measuredangle D$	6) Def of suppl. $\angle$'s

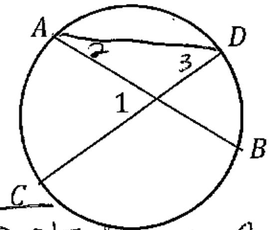
4) Given: $\overline{AB} \parallel \overline{CD}$

Prove: $\widehat{AC} \cong \widehat{BD}$



Statements	Reasons
1) $\overline{AB} \parallel \overline{CD}$	1) Given
2) $\measuredangle 1 \cong \measuredangle 2$	2) alt int $\measuredangle$'s are $\cong$ if lines are $\parallel$
4) ~~$\widehat{AC} \cong \widehat{BD}$~~ $m\measuredangle 1 = \frac{1}{2} m\widehat{BD}$ $m\measuredangle 2 = \frac{1}{2} m\widehat{AC}$	4) measure of an inscribed $\measuredangle = \frac{1}{2}$ intercepted arc
5) $\frac{1}{2} m\widehat{BD} = \frac{1}{2} m\widehat{AC}$	5) substitution
6) $\widehat{AC} \cong \widehat{BD}$	6) Multiplication POE

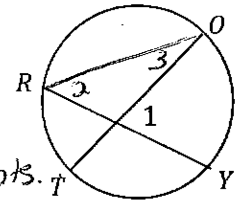
5) Given: Chords $\overline{AB}$ and $\overline{CD}$ intersect inside a circle



Prove: $m<1 = \frac{1}{2}(m\widehat{AC} + m\widehat{BD})$

Statements	Reasons
1) Auxiliary $\overline{AD}$	1) Through any 2 pts, there is exactly one line
2) $m\measuredangle 1 = m\measuredangle 2 + m\measuredangle 3$	2) measure of ext. $\measuredangle$ = sum of 2 remote interior $\measuredangle$'s
3) $m\measuredangle 2 = \frac{1}{2} m\widehat{BD}$ $m\measuredangle 3 = \frac{1}{2} m\widehat{AC}$	3) measure of an inscribed $\measuredangle$ = $\frac{1}{2}$ intercepted arc

6) Given: Chords $\overline{RY}$ and $\overline{TO}$ intersect inside a circle



$\angle 2 = \frac{1}{2}\widehat{YO}$

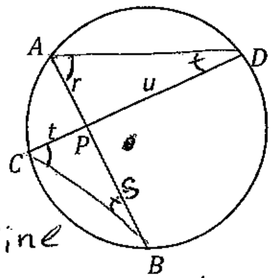
$\measuredangle 3 = \frac{1}{2}\widehat{RT}$

$\angle 1 = \angle 2 + \angle 3$

Prove: $m\measuredangle 1 = \frac{1}{2}(m\widehat{OY} + m\widehat{RT})$

Statements	Reasons
(1) Auxiliary line $\overline{RO}$	(1) Through any 2 pts. There is exactly one line
(2) $m\angle 1 = m\angle 2 + m\angle 3$	(2) The ext. $\measuredangle$ of a Δ = sum of 2 remote interior $\measuredangle$'s
(3) $m\angle 2 = \frac{1}{2} m\widehat{OY}$ $m\angle 3 = \frac{1}{2} m\widehat{RT}$	(3) measure of an inscribed $\measuredangle$ = $\frac{1}{2}$ intercepted arc
(4) $m\measuredangle 1 = \frac{1}{2}(m\widehat{OY} + m\widehat{RT})$	(4) Substitution

7) Given: $\overline{AB}$ and $\overline{CD}$ intersect at P



$\frac{r}{t} = \frac{u}{s}$

Prove: $r \bullet s = t \bullet u$

Statements	Reasons
1) Auxiliary Chords $\overline{AD}$ & $\overline{BC}$	1) Through any 2 pts. there is exactly 1 line
2) $\measuredangle A \cong \measuredangle C$; $\measuredangle B \cong \measuredangle D$	2) if 2 inscribed $\measuredangle$'s intercept the same arc, then the $\measuredangle$'s are $\cong$
3) $\Delta APD \cong \Delta CPB$	3) AA $\sim$ Post.
4) $\frac{r}{t} = \frac{u}{s}$	4) Def of $\sim$ Δ's
5) $r \cdot s = t \cdot u$	5) Means - extremes Prop.