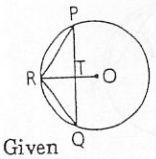
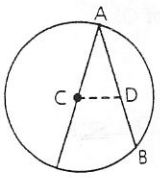
10 Given: $\odot O$, $\overleftrightarrow{OR}$ bis $\overline{PQ}$.
Prove: $\overrightarrow{RO}$ bis $\angle PRQ$.



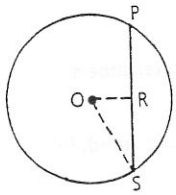
1 $\odot O$, $\overleftrightarrow{OR}$ bis $\overline{PQ}$.	1 Given
2 $\overline{OR} \perp \overline{PQ}$	2 Radius that bis a chord not a diameter—is $\perp$ to chord.
3 $\angle PTR$ is a rt $\angle$.	3 $\perp$ lines form rt $\angle$s.
4 $\angle QTR$ is a rt $\angle$.	4 Same as 3
5 $\angle PTR \cong \angle QTR$	5 Rt $\angle$s are $\cong$.
6 $\overline{PT} \cong \overline{TQ}$	6 Bis divides seg into 2 $\cong$ parts.
7 $\overline{RT} \cong \overline{RT}$	7 Reflexive prop
8 $\triangle RTP \cong \triangle RTQ$	8 SAS
9 $\angle PRT \cong \angle QRT$	9 CPCTC
10 $\overrightarrow{RO}$ bis $\angle PRQ$.	10 A ray that divides $\angle$ into 2 $\cong$ $\angle$s bis $\angle$.

11 Draw $\overline{CD} \perp$ to $\overline{AB}$, $\overline{CD}$ bis $\overline{AB}$.
AD = 15. Radius AC = 17.
$\triangle ADC$ is a rt $\triangle$.
Use Pythagorean Theorem.



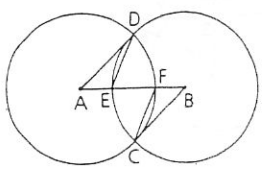
$CD^2 + 15^2 = 17^2$
$CD^2 + 225 = 289$
$CD^2 = 64$
$CD = \sqrt{64} = 8$ m

12 $\overline{RO} \perp \overline{PS}$.
A radius $\perp$ to chord bis chord.
So PR = RS = 12
$\triangle ROS$ is a rt $\triangle$.
Use Pythagorean Theorem.



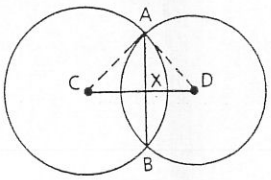
$OS^2 = 9^2 + 12^2$
$OS^2 = 81 + 144$
$OS = \sqrt{225} = 15$ cm

13 Given: $\odot$s A and B intersect as shown.
$\overline{DE} \parallel \overline{FC}$
$\angle ADE \cong \angle BCF$
$\overline{DE} \cong \overline{FC}$
Prove: $\odot A \cong \odot B$



1 $\odot$s A and B intersect as shown.	1 Given
2 $\overline{DE} \parallel \overline{FC}$	2 Given
3 $\angle ADE \cong \angle BCF$	3 Given
4 $\overline{DE} \cong \overline{FC}$	4 Given
5 $\angle BFC \cong \angle AED$	5 PAE
6 $\triangle ADE \cong \triangle BCF$	6 ASA
7 $\overline{AD} \cong \overline{BC}$	7 CPCTC
8 $\odot A \cong \odot B$	8 Radii of $\odot$s $\cong$, $\odot$s $\cong$.

14 AB = 24 cm, CD = 21 cm
CA = 13. $\overline{CD} \perp \overline{AB}$
$\overline{CX} \perp \overline{AB}$ and bis $\overline{AB}$.
$\overline{CX}$ bis $\overline{AB}$. AX = 12.

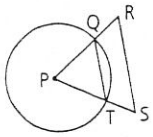


$AX^2 + CX^2 = CA^2$
$12^2 + CX^2 = 13^2$
$144 + CX^2 = 169$
$CX^2 = 25$
$CX = \sqrt{25} = 5$

$CD - CX = DX$
$21 - 5 = 16$
$DX = 16$

$AD^2 = DX^2 + AX^2$
$AD^2 = 16^2 + 12^2$
$AD^2 = 256 + 144$
$AD = \sqrt{400} = 20$ cm

15 Given: $\odot P$
$\overline{QT} \parallel \overline{RS}$
Concl: $\overline{QR} \cong \overline{TS}$



1 $\odot P$	1 Given
2 $\overline{QT} \parallel \overline{RS}$	2 Given
3 $\overline{PQ} \cong \overline{PT}$	3 Radii of $\odot$ are $\cong$.
4 $\angle PQT \cong \angle PTQ$	4 If $\triangle$ then $\triangle$
5 $\angle PQT \cong \angle PRS$	5 PCA
6 $\angle PTQ \cong \angle PSR$	6 PCA
7 $\angle PRS \cong \angle PSR$	7 Substitution prop
8 $\overline{PR} \cong \overline{PS}$	8 If $\triangle$ then $\triangle$
9 $\overline{QR} \cong \overline{TS}$	9 Subtraction prop

16 mdpt of $\overline{PQ} = \left(\frac{5-3}{2}, \frac{17+2}{2}\right) = (1, 9.5)$

radius $\odot O = \frac{PQ}{2} = \frac{\sqrt{(5+3)^2+(2-17)^2}}{2} = \frac{\sqrt{64+225}}{2}$

$= \frac{17}{2} \approx 8.5$

17 a 13

b $PQ = \sqrt{(19-15)^2 + (16-13)^2}$
$PQ = \sqrt{4^2 + 3^2} = \sqrt{25} = 5$

c $(QB)^2 = (PB)^2 - (PQ)^2$
$(QB)^2 = 13^2 - 5^2$
$QB = 12$
$AB = 2QB = 24$