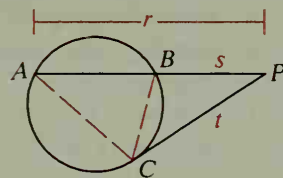


10. Write a proof of Theorem 9-13.

Given: Secant segment \overline{PA} and tangent segment \overline{PC} drawn to the circle from P .

Prove: $r \cdot s = t^2$

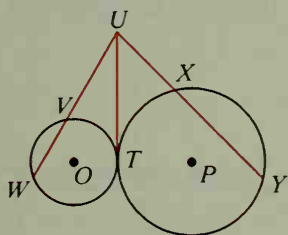


Plan for Proof: Draw chords \overline{AC} and \overline{BC} .

Show that $\angle A$ and $\angle PCB$ are congruent because they intercept the same arc. Then show that $\triangle PAC$ and $\triangle PCB$ are similar triangles and use the properties of proportions to complete the proof.

- B 11. Given: $\odot O$ and $\odot P$ are tangent to \overline{UT} at T .

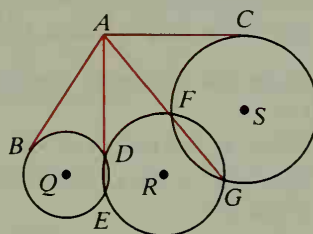
Prove: $UV \cdot UW = UX \cdot UY$



12. Given: \overline{AB} is tangent to $\odot Q$;

\overline{AC} is tangent to $\odot S$.

Prove: $\overline{AB} \cong \overline{AC}$



Chords \overline{AB} and \overline{CD} intersect at P . Find the lengths indicated.

Example $AP = 5$; $BP = 4$; $CD = 12$; $CP = \underline{\quad ? \quad}$

Solution Let $CP = x$. Then $DP = 12 - x$.

$$x(12 - x) = 5 \cdot 4$$

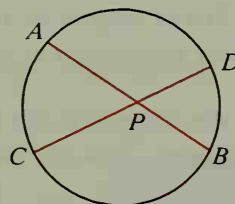
$$12x - x^2 = 20$$

$$x^2 - 12x + 20 = 0$$

$$(x - 2)(x - 10) = 0$$

$$x = 2 \text{ or } x = 10$$

$$CP = 2 \text{ or } 10$$



13. $AP = 6$; $BP = 8$; $CD = 16$; $DP = \underline{\quad ? \quad}$
 14. $CD = 10$; $CP = 6$; $AB = 11$; $AP = \underline{\quad ? \quad}$
 15. $AB = 12$; $CP = 9$; $DP = 4$; $BP = \underline{\quad ? \quad}$
 16. $AP = 6$; $BP = 5$; $CP = 3 \cdot DP$; $DP = \underline{\quad ? \quad}$

\overline{PT} is tangent to the circle. Find the lengths indicated.

17. $PT = 6$; $PB = 3$; $AB = \underline{\quad ? \quad}$
 18. $PT = 12$; $CD = 18$; $PC = \underline{\quad ? \quad}$
 19. $PD = 5$; $CD = 7$; $AB = 11$; $PB = \underline{\quad ? \quad}$
 20. $PB = AB = 5$; $PD = 4$; $PT = \underline{\quad ? \quad}$ and $PC = \underline{\quad ? \quad}$

