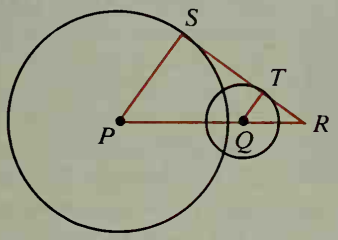
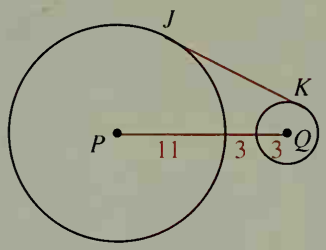
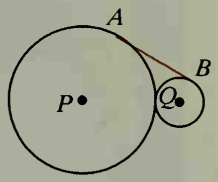
16. $\overline{SR}$ is tangent to $\odot P$ and $\odot Q$. $QT = 6$; $TR = 8$; $PR = 30$. $PQ =$ ___?___; $PS =$ ___?___; $ST =$ ___?___.



17. $\overline{JK}$ is tangent to $\odot P$ and $\odot Q$. $JK =$ ___?___ (*Hint*: What kind of quadrilateral is $JPQK$?)



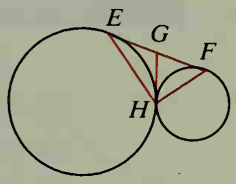
18. Circles P and Q have radii 6 and 2 and are tangent to each other. Find the length of their common external tangent $\overline{AB}$. (*Hint*: Draw $\overline{PQ}$, $\overline{PA}$, and $\overline{QB}$.)



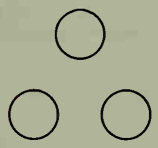
19. Given: Two tangent circles; $\overline{EF}$ is a common external tangent; $\overline{GH}$ is the common internal tangent.

a. Discover and prove something interesting about point G.

b. Discover and prove something interesting about $\angle EHF$.



20. Three circles are shown. How many circles tangent to all three of the given circles can be drawn?



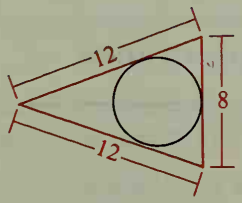
C **21.** Suppose the three circles represent three spheres.

a. How many planes tangent to each of the spheres can be drawn?

b. How many spheres tangent to all three spheres can be drawn?

22. Prove Theorem 9-2. (*Hint*: Write an indirect proof.)

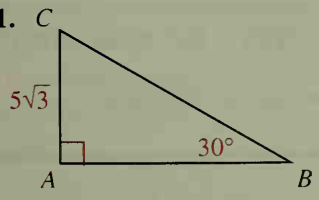
23. Find the radius of the circle inscribed in the triangle.



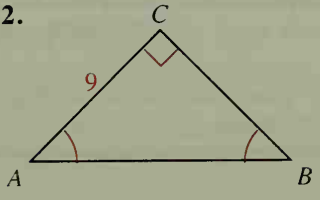
Mixed Review Exercises

Find AB. In Exercise 3, $\overline{CB}$ is tangent to $\odot A$.

1.



2.



3.