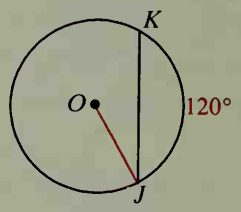
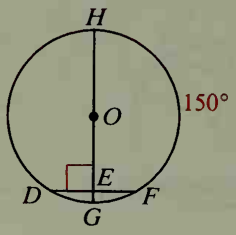
B **16.** Write a paragraph proof of part (2) of Theorem 9-4. First list what is given and what is to be proved.

17.



If $OJ = 10$, $JK =$ ___?___.

18.



If $OE = 8\sqrt{3}$, $HG =$ ___?___.

19. A plane 5 cm from the center of a sphere intersects the sphere in a circle with diameter 24 cm. Find the diameter of the sphere.

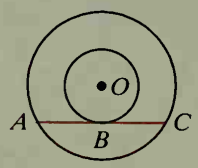
20. A plane P cuts sphere O in a circle that has diameter 20. If the diameter of the sphere is 30, how far is the plane from O?

21. Use trigonometry to find the measure of the arc cut off by a chord 12 cm long in a circle of radius 10 cm.

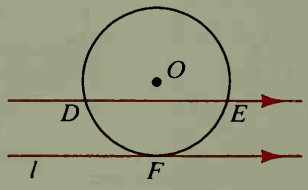
22. In $\odot O$, $m\overset{\frown}{RS} = 70$ and $RS = 20$. Use trigonometry to find the radius of $\odot O$.

State and prove a theorem suggested by the figure.

C **23.**



24.



25. A, B, C are points on $\odot O$ such that $\triangle ABC$ is equilateral. If the radius of the circle is 6, what is the perimeter of $\triangle ABC$?

26. Investigate the possibility, given a circle, of drawing two chords whose lengths are in the ratio 1:2 and whose distances from the center are in the ratio 2:1. If the chords can be drawn, find the length of each in terms of the radius. If not, prove that the figure is impossible.

27. Three parallel chords of $\odot O$ are drawn as shown. Their lengths are 20, 16, and 12 cm. Find, to the nearest tenth of a centimeter, the length of chord $\overline{XY}$ (not shown).