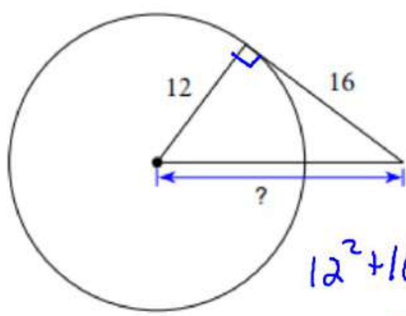
Find the segment length indicated. Assume that lines which appear to be tangent are tangent.

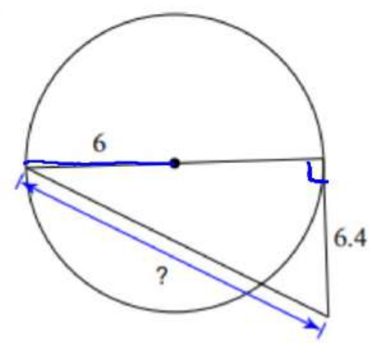


$$12^2 + 16^2 = c^2$$

$$144 + 256 = c^2$$

$$400 = c^2$$

$$c = 20$$



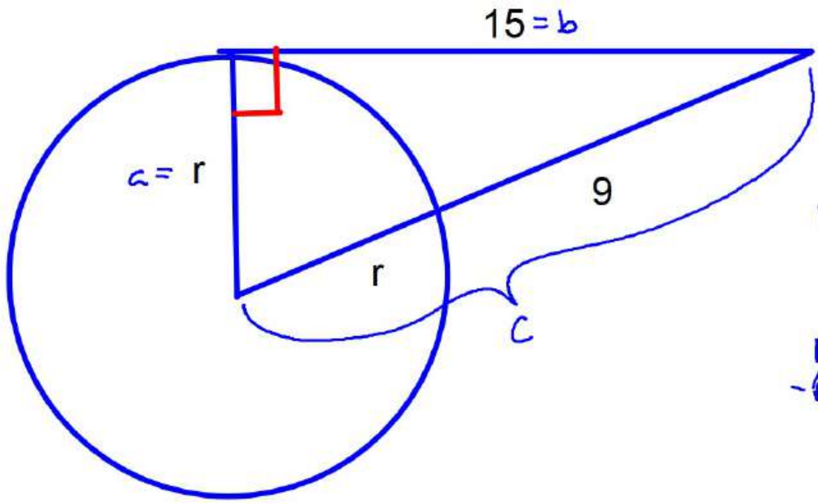
$$12^2 + 6.4^2 = c^2$$

$$144 + 40.96 = c^2$$

$$184.96 = c^2$$

$$13.6 = c$$

Find the length of the radius:



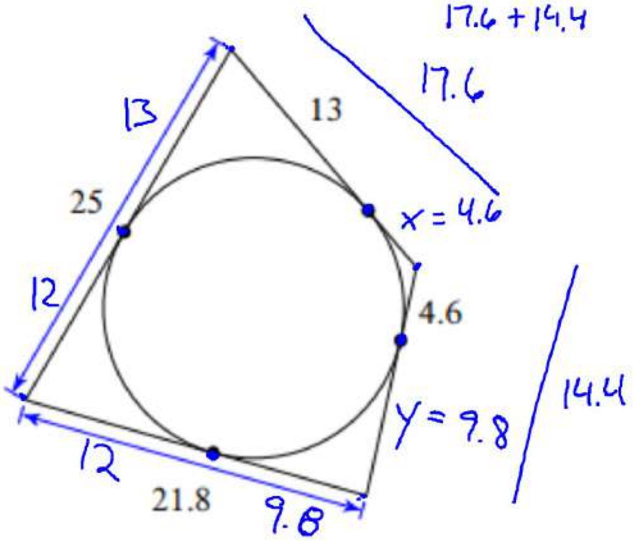
$$r^2+15^2=(r+9)^2$$
$$=(r+9)(r+9)$$
$$\cancel{r^2}+225=\cancel{r^2}+18r+81$$
$$-r^2 \qquad -r^2$$
$$225=18r+81$$
$$-81 \qquad -81$$
$$144=18r$$
$$r=8$$

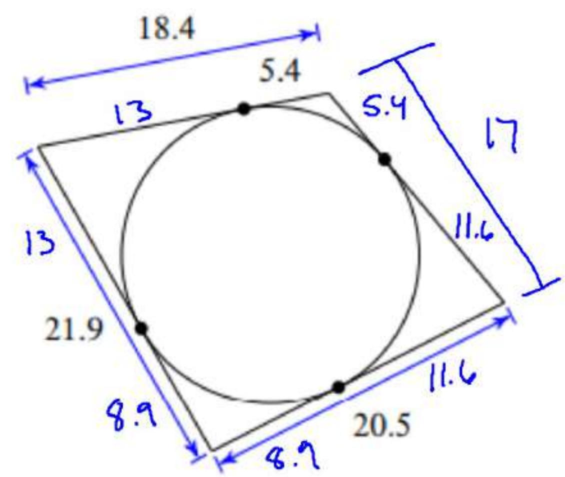
Find the perimeter of each polygon. Assume that lines which appear to be tangent are tangent.

$25 + 21.8 + \cancel{4.6+13} = \cancel{64.4}$

$17.6 + 14.4$ $= 78.8$

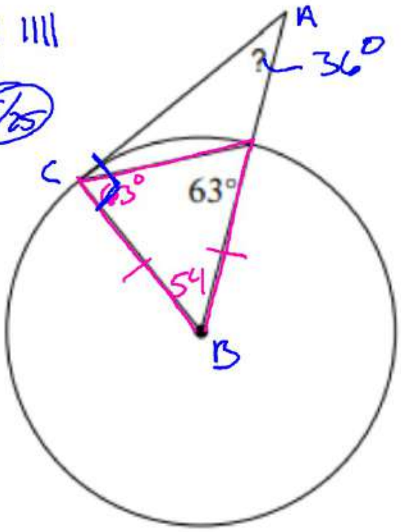
$P = 72.4$

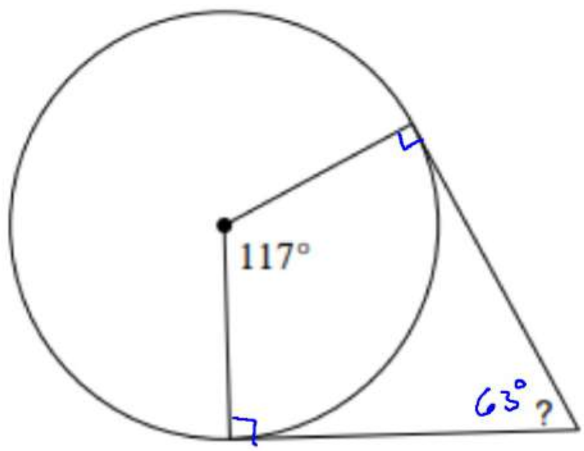




Find the angle measure indicated. Assume that lines which appear to be tangent are tangent.

17 ||||
18
45/25



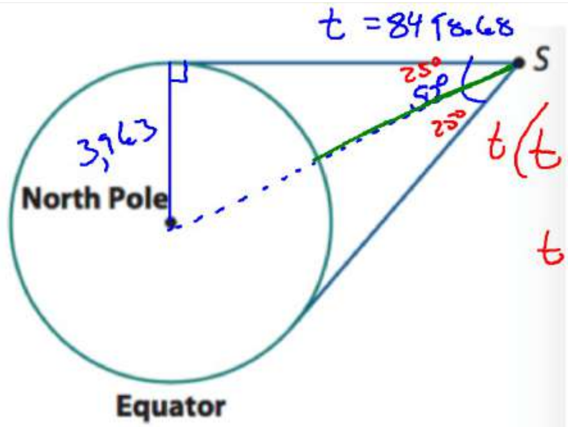


$90+90+117+?=360$

180
$\underline{117}$
297

$297+x=360$
$-297 \quad -297$
$x=63$

Suppose a satellite is located in space at point S. In this view of Earth in the plane of the equator, the angle between the lines of sight at S is 50°. The radius of the Earth is 3,963 miles.



$t(\tan 25°) = \left(\frac{3963}{t}\right)t$

$t \tan 25° = 3963$

$t = \frac{3963}{\tan 25°}$

$= 8498.68$ mi

What is the distance from S to the horizontal along the equator, that is, the length of a tangent from S to the Earth's surface along the equator?

$3963^2 + 8498.68^2 = c^2$

$c = 9377.25$

$- 3963$

5414.25 mi

How high is the satellite S above Earth's surface, that is, the length of a segment S to the closest point on Earth's surface along the equator?