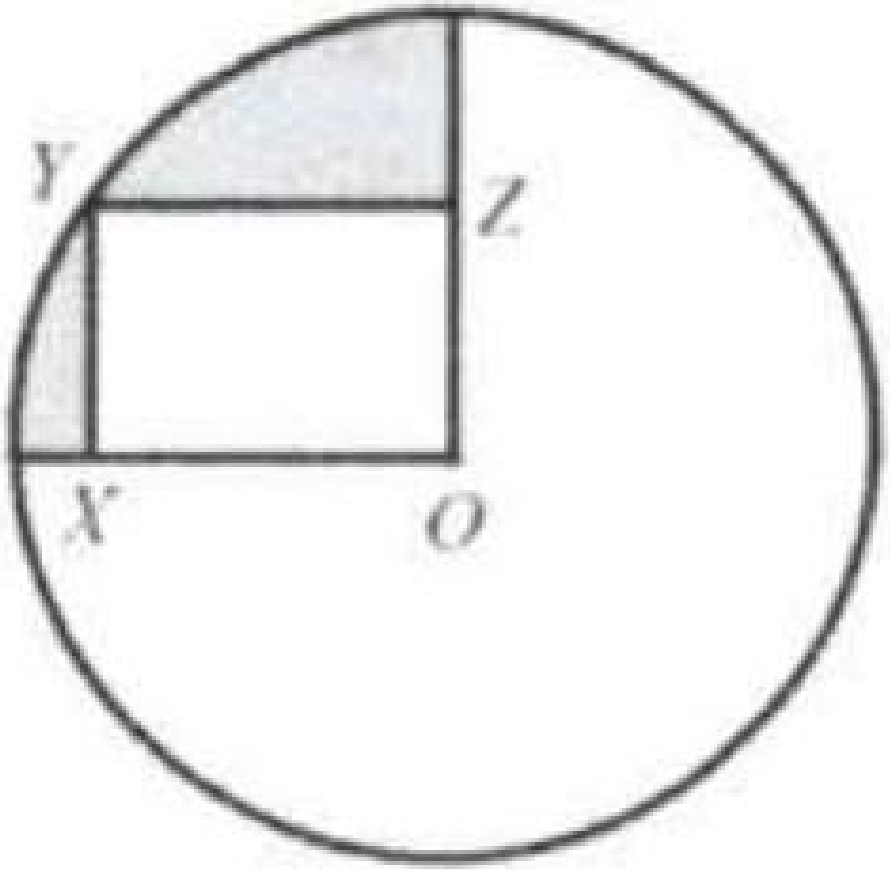
Example 7

In the figure $XO = 8, ZO = 6$, and the vertex Y of rectangle $XYZO$ lies on circle O. Find the area of the shaded region. Express your answer in terms of π.

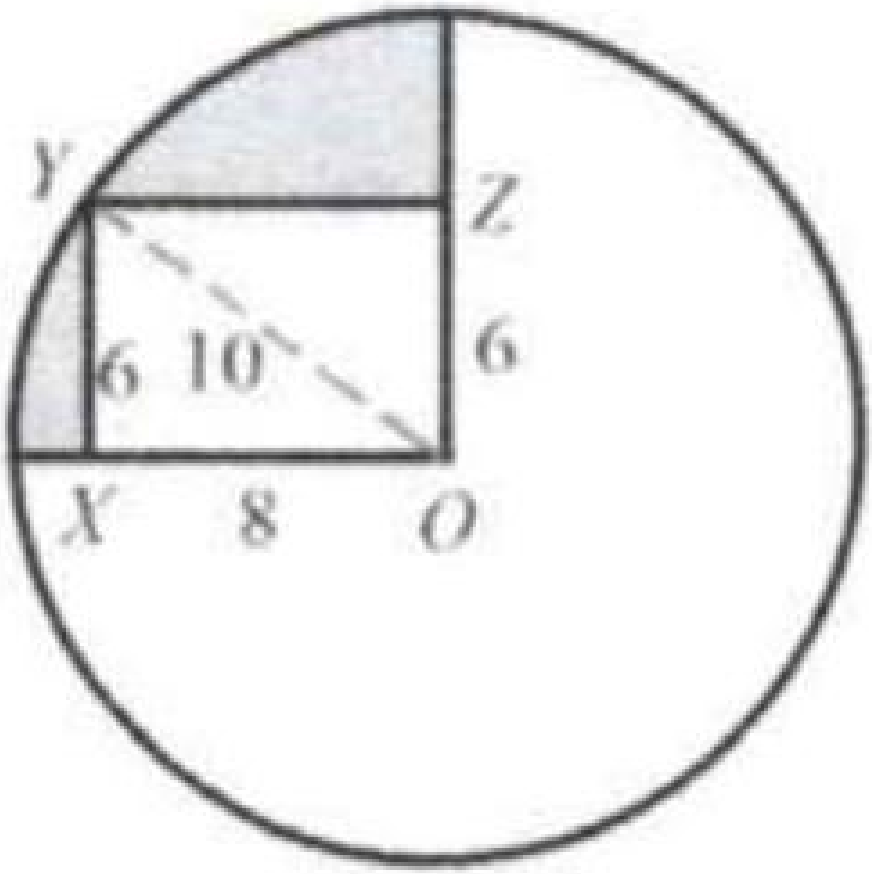
Solution: $25\pi - 48$ (units ^{2})

Connect YO. We see that triangle OXY is a 6-8-10 right



triangle. So the radius of the circle is 10 . The area of the circle is $\pi \times 10^2 = 100\pi$. The area of the quarter circle is 25π. The shaded area is

$$25\pi - 6 \times 8 = 25\pi - 48$$


y
Z
6
10
6
X
8
O