

1_4. First, we can construct a right triangle with sides r , $r-2a$ and $r-a$. The radius of the circle is r . Using the Pythagorean Theorem, we have $(r-a)^2 + (r-2a)^2 = r^2$.

After foiling and combining like terms: $2r^2 - 6ar + 5a^2 = r^2$

Subtracting r^2 from both sides: $2r^2 - r^2 - 6ar + 5a^2 = 0$

Factoring: $(r-5a)(r-a) = 0$

Thus, $r = 5a$ and the length of the side we can find using the following ratio:

$$\frac{r}{5a} = \frac{x}{2a}$$

By cross multiplying, we get $5ax = 2ar$. Divide both sides by $5a$ to solve for x and we get $x = 2r/5$.