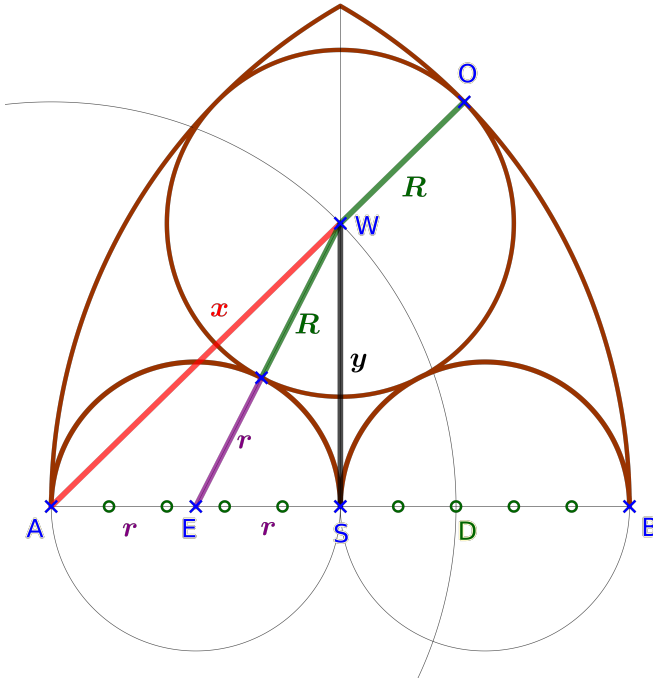




Důkaz tvrzení, že  $|AD| = \frac{7}{10}|AB|$

:



Jelikož  $|AO| = |AB|$ , tak platí, že

$$x = |AD| = 4r - R \tag{1}$$

$$\triangle ASW : \quad (4r - R)^2 - (2r)^2 = y^2$$

$$\triangle ESW : \quad (r + R)^2 - r^2 = y^2$$

Upravíme:



$$12r^2 - 8rR + R^2 = y^2 \quad (2)$$

$$2rR + R^2 = y^2 \quad (3)$$

Odečteme (2) a (3):

$$\begin{aligned} 12r^2 - 10rR &= 0 \\ 6r &= 5R \\ R &= \frac{6}{5}r \end{aligned} \quad (4)$$

(4) dosadíme do (1):

$$\begin{aligned} |AD| &= 4r - \frac{6}{5}r \\ |AD| &= \frac{14}{5}r \end{aligned}$$

Ale  $r = \frac{1}{4}|AB|$ , pročež

$$|AD| = \frac{14}{5} \cdot \frac{1}{4}|AB| = \underline{\underline{\frac{7}{10}|AB|}} \quad \square$$