Answer on Question #45354 – Math – Calculus

Question. A resort is roping off a children's swimming area in the lake at the resort. They have 150 m of rope to use. What is the maximum area they can rope off for the children's swimming section?

Solution. We shall use the next fact: among all the curves of a given length circle limits the maximum area.

Since $C = 2\pi r = 150 \Rightarrow r = \frac{150}{2\pi} = \frac{75}{\pi} \Rightarrow S = \pi r^2 = \pi \frac{5{,}625}{\pi^2} = \frac{5{,}625}{\pi} \approx 1{,}791.4$ sq. m.

Answer. $S = \frac{5{,}625}{\pi} \approx 1{,}791.4$ sq. m.