

2.86
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$$3(\log_2 \sin x)^2 + \log_2(1 - \sin^2 x) \geq 2$$

התחום הנדרש

$$\begin{aligned} & \boxed{2\pi k < x < \pi + 2\pi k} \leftarrow \sin x > 0 \\ & \leftarrow \sin^2 x > 0 \end{aligned}$$

$$3(\log_2 \sin x)^2 + \log_2(1 - \sin^2 x) \geq 2$$

$$3(\log_2 \sin x)^2 + \log_2(2 \sin^2 x) \geq 2$$

$$3(\log_2 \sin x)^2 + \log_2 2 + \log_2(\sin^2 x) \geq 2$$

$$3(\log_2 \sin x)^2 + 2 \log_2(\sin x) - 1 \geq 0$$

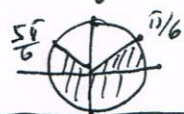
$$3t^2 + 2t - 1 \geq 0$$



$$\begin{aligned} t < -1 \\ \log_2 \sin x < -1 \\ \sin x < \frac{1}{2} \end{aligned}$$

$$\begin{aligned} t > \frac{1}{3} \\ \log_2 \sin x > \frac{1}{3} \\ \sin x > 2^{1/3} = \sqrt[3]{2} \end{aligned}$$

ממשיך



$$\begin{aligned} 2\pi k + 0 < x < \pi/6 + 2\pi k \\ 2\pi k + 5\pi/6 < x < \pi + 2\pi k \end{aligned}$$

התחום עם התוצאה הנדרשת

$$\begin{aligned} 2\pi k < x < \pi/6 + 2\pi k \\ 2\pi k + 5\pi/6 < x < \pi + 2\pi k \end{aligned}$$