

1.94

$$\sqrt{1 + \log_4\left(\frac{1}{x^2}\right)} - \frac{4}{\log_2 x \cdot 16} \leq 0$$

$$\sqrt{1 + \log_4(x^{-2})} \leq 4 \log_2(2x)$$

$$\sqrt{1 - \frac{3}{2} \log_2 x} \leq \log_2(2x) = 1 + \log_2 x$$

$$\sqrt{1 - \frac{3}{2} t} \leq 1 + t \quad t = \log_2 x \quad | \cdot 2 |$$

$$1 - \frac{3}{2} t \leq 1 + 2t + t^2$$

$$0 \leq t^2 + 3.5t = t(t + 3.5)$$

$$t = 0, -3.5$$



$$0 \leq t \rightarrow 0 \leq \log_2 x \rightarrow 1 \leq x$$

$$-3.5 \geq t \rightarrow -3.5 \geq \log_2 x \rightarrow \frac{1}{2^{3.5}} \geq x$$

$$\boxed{1 \leq x \leq \sqrt[3]{4}} \quad \text{אם } x \text{ הוא מספר טבעי}$$

$$\boxed{0 < x \leq \frac{1}{2^{3.5}}}$$

$$\frac{1}{2} \neq x > 0 \leftarrow 1 \neq 2x > 0$$

$$x^2 < 0$$

$$x > 0 \leftarrow \frac{1}{x^2} > 0$$

$$\frac{1}{x^3} \geq \frac{1}{4} \leftarrow 1 + \log_4\left(\frac{1}{x^2}\right) \geq 0$$

$$x^3 \leq 4$$

$$x \leq \sqrt[3]{4}$$

$$\boxed{\frac{1}{2} < x \leq \sqrt[3]{4}}$$

$$\boxed{0 < x < \frac{1}{2}}$$