

2.66
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$$\tan x + \tan 2x - \tan 3x \leq 0$$

$$\tan 2x = \frac{\sin 2x}{\cos 2x} - \frac{\sin 3x}{\cos 3x} \leq 0$$

$$\tan 2x + \frac{\sin x \cos 3x - \cos x \sin 3x}{\cos x \cos 3x} \leq 0$$

$$\tan 2x + \frac{\sin(x-3x)}{\cos x \cos 3x} \leq 0$$

$$\frac{\sin 2x}{\cos 2x} - \frac{\sin 2x}{\cos x \cos 3x} \leq 0$$

$$\sin 2x \left(\frac{1}{\cos 2x} - \frac{1}{\cos x \cos 3x} \right) < 0$$

$$\sin 2x \left(\frac{\cos x \cos 3x - \cos 2x}{\cos x \cos 2x \cos 3x} \right) < 0$$

$$\sin 2x \left(\frac{\frac{1}{2} \cos 4x + \frac{1}{2} \cos 2x - \cos 2x}{\cos x \cos 2x \cos 3x} \right) < 0$$

$$\frac{1}{2} \sin 2x \left(\frac{\cos 4x - \cos 2x}{\cos x \cos 2x \cos 3x} \right) < 0$$

$$\frac{1}{2} \sin 2x \left(\frac{2 \cos^2 2x - 1 - \cos 2x}{\cos x \cos 2x \cos 3x} \right) < 0$$

$$2x = \pi k$$

$$x = \frac{\pi k}{2}$$

$$x = \frac{\pi}{2} + \pi k, \frac{\pi}{4}, \frac{\pi k}{2}, \frac{\pi}{6}, \frac{\pi k}{3}$$

$$2 \cos^2 2x - \cos 2x - 1 = 0$$

$$\cos 2x = 1 \rightarrow 2x = 2\pi k \rightarrow x = \pi k$$

$$\cos 2x = -\frac{1}{2} \rightarrow 2x = \pm \frac{2\pi}{3} + 2\pi k$$

$$x = \pm \frac{\pi}{3} + \pi k$$

решить $\tan x$
 $x, 2x, 3x \neq \frac{\pi}{2} + \pi k$
 $x \neq \frac{\pi}{6} + \frac{\pi k}{3}, \frac{\pi}{4}, \frac{\pi k}{2}$

