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$$\frac{Kx^2 - \sqrt{x+K}}{ax^2 - bx + c} = \frac{K(x - \frac{K}{a})(x-1)}{a(x - \frac{K}{a})(x-1)} \xrightarrow{x=1} \frac{K \times \frac{1}{a}}{a \times \frac{1}{a}} = \frac{1}{a}$$

-1

A

$$\begin{aligned} \lim_{x \rightarrow 0^+} \frac{(4x-1) - (4x+1)}{0^+} &= \frac{-2}{0^+} = -\infty \\ \lim_{x \rightarrow 0^-} \frac{-(4x+1) - (4x+1)}{0^-} &= \frac{-8}{0^-} = -\infty \end{aligned}$$

$$\frac{-4x+1 - 4x-1}{2} = -4$$

2

-2

$$\frac{x-K}{\sqrt{x}-K} \times \frac{\sqrt{x}+K}{\sqrt{x}+K} = \frac{(x-K)(\sqrt{x}+K)}{(x-K)} = \sqrt{x}+K \xrightarrow{x=K} K$$

A

-3

$$\frac{x - \sqrt{2x}}{2x^2 - x - 4} = \frac{x - \sqrt{2x}}{x(2x-1)(x+\frac{4}{x})} \times \frac{x+\sqrt{2x}}{x+\sqrt{2x}} = \frac{x^2 - 2x}{x(2x-1)(x+\frac{4}{x})} \times \frac{1}{K} = \frac{1}{1K}$$

5

-K

قضیة $x^2 - x - 4 = 0$
 $(x-K)(x+\frac{4}{x}) = 0 \rightarrow \begin{cases} x=K \\ x=-\frac{4}{x} \end{cases}$

$$\frac{1-\sqrt{x}}{K\sqrt{x-9}} \times \frac{1+\sqrt{x}}{1+\sqrt{x}} \times \frac{2+\sqrt{x-9}}{2+\sqrt{x-9}} = \frac{1-x}{-1+x} \times \frac{K}{2} = -1$$

A

-3

$$\frac{\sqrt{2x+K} - K}{\sqrt{2x+K} + K} \times \frac{\sqrt{2x+K} + K}{\sqrt{2x+K} + K} \times \frac{\sqrt{(2x+K)^2 + 3\sqrt{2x+K} + 9}}{\sqrt{(2x+K)^2 + 3\sqrt{2x+K} + 9}} = \frac{K(x-K)}{2x-12} \times \frac{2\sqrt{x}}{1} = \frac{11}{K}$$

11/K

-5

$$\frac{\sqrt{x+1} - 1}{\sqrt{x} - 1} \times \frac{\sqrt{x+1} + 1}{\sqrt{x+1} + 1} \times \frac{\sqrt{x+1} + \sqrt{x} + 1}{\sqrt{x+1} + \sqrt{x} + 1} = \frac{x+1 - 1}{x-1} \times \frac{3}{K} = \frac{1}{K}$$

A

-V

$$\frac{x(x-1)(x+\frac{K}{x})}{(x-1)(x+1)} \times \frac{K}{K} = \frac{1}{K}$$

$$\frac{(1+\cos x)(1-\cos x + \cos^2 x)}{1-\cos^2 x} = \frac{1+1}{2} = \frac{1}{K}$$

A

-1

$$\frac{\cos x - \sin x}{\cos x} = \frac{-1}{\cos x} = -\frac{1}{\sqrt{2}} = -\sqrt{2}$$

A

-9

$$\frac{Kx^2 - \sqrt{x} + K}{\omega x^2 - \lambda x + K} = \frac{K(x - \frac{K}{\omega})(x-1)}{\omega(x - \frac{K}{\omega})(x-1)} \xrightarrow{x=1} \frac{Kx \frac{1}{K}}{\omega x \frac{K}{\omega}} = \frac{1}{K}$$

$$\begin{aligned} 0^+ & \rightarrow \frac{(Kx-1) - (Kx+1)}{0^+} = \frac{-2}{0^+} = -\infty \\ 0^- & \rightarrow \frac{(-Kx+1) - (Kx+1)}{0^-} = \frac{0}{0^-} = -\infty \end{aligned}$$

$$\frac{x-K}{\sqrt{x}-K} \times \frac{\sqrt{x}+K}{\sqrt{x}+K} = \frac{(x-K)(\sqrt{x}+K)}{(x-K)} = \sqrt{x}+K \rightarrow K$$

$$\frac{x - \sqrt{Kx}}{Kx^2 - x - K} = \frac{x - \sqrt{Kx}}{K(x-K)(x+\frac{K}{K})} \times \frac{x + \sqrt{Kx}}{x + \sqrt{Kx}} = \frac{x^2 - Kx}{K(x-K)(x+\frac{K}{K})} \times \frac{1}{K} = \frac{1}{K}$$

$\omega \rightarrow x^2 - x - K = 0$
 $(x-K)(x+K) = 0 \rightarrow \begin{cases} x = K \\ x = -K \end{cases}$

$$\frac{1 - \sqrt{x}}{K \sqrt{x} - K} \times \frac{1 + \sqrt{x}}{1 + \sqrt{x}} \times \frac{K + \sqrt{x} - K}{K + \sqrt{x} - K} = \frac{1-x}{-1+x} \times \frac{K}{K} = -1$$

$$\frac{\sqrt{Kx+K} - K}{\sqrt{Kx+K} - K} \times \frac{\sqrt{Kx+K} + K}{\sqrt{Kx+K} + K} \times \frac{\sqrt{(\omega x + \nu)^2 + 3\sqrt{\omega x + \nu} + 9}}{\sqrt{(\omega x + \nu)^2 + 3\sqrt{\omega x + \nu} + 9}} = \frac{K(x-K)}{Kx-K} \times \frac{K}{K} = \frac{1}{K}$$

$$\frac{\sqrt{Kx + \sqrt{x}} - K}{\sqrt{x} - 1} \times \frac{\sqrt{Kx + \sqrt{x}} + 1}{\sqrt{Kx + \sqrt{x}} + 1} \times \frac{\sqrt{Kx + \sqrt{x}} + 1}{\sqrt{Kx + \sqrt{x}} + 1} = \frac{Kx + \sqrt{x} - K}{x-1} \times \frac{K}{K} =$$

$$\frac{K(x-1)(x+\frac{K}{K})}{(\sqrt{x}-1)(\sqrt{x}+1)} \times \frac{K}{K} = \frac{K}{K}$$

$$\frac{(1 + \cos x)(1 - \cos x + \cos^2 x)}{1 - \cos^2 x} = \frac{K+1}{K} = \frac{K}{K}$$

$$\frac{\cos x - \sin x}{\cos x} = \frac{-1}{\cos x} = -\frac{1}{\sqrt{K}} = -\sqrt{K}$$

$$\tan \theta - 1 = \left(\frac{\sin \theta}{\cos \theta} - 1 \right) \left(\frac{\sin \theta}{\cos \theta} + 1 \right) = \frac{(\sin \theta - \cos \theta)(\sin \theta + \cos \theta)}{\cos^2 \theta}$$

$$\cos 2\theta = \cos^2 \theta - \sin^2 \theta = \frac{(\cos \theta - \sin \theta)(\sin \theta + \cos \theta)}{-(\sin \theta - \cos \theta)}$$

$$\Rightarrow \frac{(\sin \theta - \cos \theta)(\sin \theta + \cos \theta)}{\cos^2 \theta} = \frac{-(\sin \theta - \cos \theta)(\sin \theta + \cos \theta)}{-(\sin \theta - \cos \theta)}$$

$$-\frac{1}{\cos^2 \theta} = -1$$