Name: Richard

QUIZ 2

MATH 200
August 26, 2025

1. $\lim_{x\to 2} \dfrac{x^2-2x}{x^2-x-2} = \lim_{x\to 2} \dfrac{x(x-2)}{(x+1)(x-2)} = \lim_{x\to 2} \dfrac{x}{x+1} = \dfrac{2}{2+1} = \boxed{\dfrac{2}{3}}$

getting $\frac{0}{0}$

2. $\lim_{x\to 9} \dfrac{\sqrt{x}-3}{x-9} = \lim_{x\to 9} \dfrac{\sqrt{x}-3}{\sqrt{x}^2-3^2} = \lim_{x\to 9} \dfrac{\sqrt{x}-3}{(\sqrt{x}+3)(\sqrt{x}-3)} = \lim_{x\to 9} \dfrac{1}{\sqrt{x}+3}$

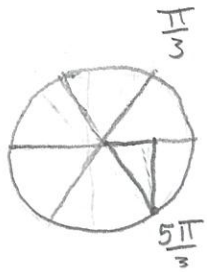
$= \dfrac{1}{\sqrt{9}+3} = \dfrac{1}{3+3} = \boxed{\dfrac{1}{6}}$

getting $\frac{0}{0}$

3. $\lim_{x\to 1} \dfrac{\frac{1}{2}-\frac{1}{2x}}{x-1} = \lim_{x\to 1} \dfrac{\frac{1}{2}-\frac{1}{2x}}{x-1} \cdot \dfrac{2x}{2x} = \lim_{x\to 1} \dfrac{x-1}{(x-1)2x} =$

$= \lim_{x\to 1} \dfrac{1}{2x} = \boxed{\dfrac{1}{2}}$

getting $\frac{0}{0}$



4. $\lim_{x\to 5\pi/3} \sec(x) = \sec\left(\dfrac{5\pi}{3}\right) = \dfrac{1}{\cos\left(\frac{5\pi}{3}\right)} = \dfrac{1}{1/2} = \boxed{2}$

Name: Richard

QUIZ 2

MATH 200
August 26, 2025

1. $\lim_{x\to -1} \dfrac{x^2+x}{x^2-x-2} = \lim_{x\to -1} \dfrac{x(x+1)}{(x+1)(x-2)} = \lim_{x\to -1} \dfrac{x}{x-2} = \dfrac{-1}{-1-2} = \boxed{\dfrac{1}{3}}$

getting $\frac{0}{0}$

2. $\lim_{x\to 1} \dfrac{2-\frac{2}{x}}{x-1} = \lim_{x\to 1} \dfrac{2-\frac{2}{x}}{x-1}\cdot\dfrac{x}{x} = \lim_{x\to 1} \dfrac{2x-2}{(x-1)x} = \lim_{x\to 1} \dfrac{2(x-1)}{(x-1)x}$

$= \lim_{x\to 1} \dfrac{2}{x} = \dfrac{2}{1} = \boxed{2}$

getting $\frac{0}{0}$

3. $\lim_{x\to 2} \dfrac{\sqrt{2x}-2}{x-2} = \lim_{x\to 2} \dfrac{\sqrt{2x}-2}{x-2}\cdot\dfrac{\sqrt{2x}+2}{\sqrt{2x}+2} = \lim_{x\to 2} \dfrac{2x+2\sqrt{2x}-2\sqrt{2x}-4}{(x-2)(\sqrt{2x}+2)}$

$= \lim_{x\to 2} \dfrac{2x-4}{(x-2)(\sqrt{2x}+2)} = \lim_{x\to 2} \dfrac{2(x-2)}{(x-2)(\sqrt{2x}+2)}$

$= \lim_{x\to 2} \dfrac{2}{\sqrt{2x}+2} = \dfrac{2}{\sqrt{2\cdot 2}+2} = \dfrac{2}{4} = \boxed{\dfrac{1}{2}}$

getting $\frac{0}{0}$

4. $\lim_{x\to 5\pi/6} \cos(x) = \cos\left(\dfrac{5\pi}{6}\right) = \boxed{\dfrac{-\sqrt{3}}{2}}$