$$\lim_{x \to 3} \frac{x^2 - 4x + 3}{x^2 - x - 6}$$

$$\frac{3^2 - 4(3) + 3}{3^2 - 3 - 6}$$

$$\frac{9 - 12 + 3}{9 - 3 - 6} = \frac{0}{0}$$

$$x^2 - 4x + 3 \;\Big|\; x - 3$$

$$x^2 - 3x \qquad\qquad x - 1$$

$$-x + 3$$

$$x - 3$$

$$0$$

$$x^2 - 4x + 3 = (x - 1)(x - 3)$$

$$x^2 - x - 6 \;\Big|\; x - 3$$

$$-x^2 + 3x \qquad\qquad x + 2$$

$$+2x - 6$$

$$-2x + 6$$

$$0$$

$$x^2 - x - 6 = (x-3)(x+2)$$

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

$$\lim_{x \to 3} \frac{x-1}{x+2} = \frac{3-1}{3+2}$$

$$\lim_{x \to 2} \frac{\sqrt{3x-2}-2}{\sqrt{4x+1}-3}$$

$x \to 2$

$$\frac{\sqrt{3\times2-2}-2}{\sqrt{4\times2+1}-3}$$

$$\frac{2-2}{3-3} = \frac{0}{0}$$

$$(a^2-b^2) = (a+b)(a-b)$$

$$\frac{(\sqrt{3x-2}-2)}{\sqrt{4x+1}-3} \times \frac{(\sqrt{3x-2}+2)}{(\sqrt{3x-2}+2)} \times \frac{(\sqrt{4x+1}+3)}{(\sqrt{4x+1}+3)}$$

$$\frac{(\sqrt{3x-2}-2)}{\sqrt{11x+1}-3}\times\frac{(\sqrt{3x-2}+2)}{(\sqrt{3x-2}+2)}\times\frac{(\sqrt{11x+1}+3)}{(\sqrt{11x+1}+3)}$$

$$\frac{(3x-2]-4)}{(4x+1]-9)}\times\frac{(\sqrt{11x+1}+3)}{(\sqrt{3x-2}+2)}$$

$$\frac{(3x-5)}{(11x-8)}\times\frac{(\sqrt{11x+1}+3)}{(\sqrt{3x-2}+2)}$$

$$\frac{3(x-2)}{11(x-2)}\times\frac{(\sqrt{11x+1}+3)}{(\sqrt{3x-2}+2)}$$

$$\frac{3}{11}\cdot\frac{(\sqrt{11x+1}+3)}{(\sqrt{3x+2}+2)}$$

$$\frac{3}{(1} \cdot \frac{(\sqrt{(1x+1} + 3)}{(\sqrt{3x-2} + 2)}$$

$$\lim_{x \to 12} \frac{3}{(1} \cdot \frac{(\sqrt{(11x+1} + 3)}{(\sqrt{3x-2} + 2)}$$

$$\frac{3}{(1} \cdot \frac{(\sqrt{(12+1} + 3)}{(\sqrt{3x2-2} + 2)}$$

$$\frac{3}{(1} \cdot \frac{(3+3)}{(2+2)} = \frac{18}{16}$$

$$\lim_{x \to 3} \frac{3x^3 - 4x^2 - x + 2}{2x^3 - 3x^2 + 1}$$

$$\frac{3 \times 27 - 4 \times 9 - 3 + 2}{2 \times 27 - 3 \times 9 + 1} = \frac{81 - 36 - 1}{81 - 27 + 1}$$

$$\frac{3 \times 1^3 - 4 \times 1^2 - 1 + 2}{}$$