

$$\lim_{x \rightarrow 3} \frac{2x - 6}{3\sqrt{4x+13} - 5x} = \frac{0}{0} \quad (x-3)$$

$$\frac{2 \cdot (x-3)}{3 \cdot \sqrt{4x+13} - 5x} \cdot \frac{3\sqrt{4x+13} + 5x}{3\sqrt{4x+13} + 5x}$$

$$\frac{2 \cdot (x-3) \cdot [3\sqrt{4x+13} + 5x]}{9 \cdot (4x+13) - 25x^2}$$

$$-25x^2 + 117 + 36x$$

$$-25 \left( x^2 - \frac{36}{25}x + \frac{117}{25} \right)$$

$$-25 \left( x - 3 \right) \left( x - \frac{39}{25} \right)$$