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$$\lim_{x \rightarrow 4} \frac{\sqrt{2x+1}-3}{\sqrt{x-2}-\sqrt{2}} = \left[\frac{0}{0} \right] \text{F.I.}$$

$$\lim_{x \rightarrow 4} \frac{\sqrt{2x+1}-3}{\sqrt{x-2}-\sqrt{2}} \cdot \frac{\sqrt{x-2}+\sqrt{2}}{\sqrt{x-2}+\sqrt{2}} = \left[\frac{(\sqrt{2x+1}-3)(\sqrt{x-2}+\sqrt{2})}{x-2-2} = \frac{0}{0} \right] \text{F.I.}$$

$$\lim_{x \rightarrow 4} \frac{(\sqrt{2x+1}-3)(\sqrt{x-2}+\sqrt{2})}{x-4} \cdot \frac{(\sqrt{2x+1}+3)}{(\sqrt{2x+1}+3)} = \lim_{x \rightarrow 4} \frac{2 \cancel{(x-4)} (\sqrt{x-2}+\sqrt{2})}{\cancel{(x-4)} (\sqrt{2x+1}+3)} = \frac{2}{3} \sqrt{2}$$