d) $\lim\limits_{x \to -1} \dfrac{x^2 - x - 2}{(x+1)^2} = \dfrac{"0"}{0}$

$= \lim\limits_{x \to -1} \dfrac{(x+1).(x-2)}{(x+1)^2}$

$= \lim\limits_{\substack{x \to -1 \\ < \\ >}} \dfrac{x-2}{x+1} = \dfrac{"-3"}{0^{\mp}} = \pm\infty$

x	-1	
$x+1$	$-$ 0	$+$

e) $\lim\limits_{x \to \pm\infty} \dfrac{\sqrt{9x^2+1}}{3-2x} = \dfrac{"+\infty}{\mp\infty}"$

$= \lim\limits_{x \to \pm\infty} \dfrac{\frac{\sqrt{9x^2+1}}{x}}{\frac{3-2x}{x}} = \lim\limits_{x \to \pm\infty} \dfrac{\pm\sqrt{\frac{9x^2+1}{x^2}}}{\frac{3-2x}{x}}$

$= \lim\limits_{x \to \pm\infty} \dfrac{\pm\sqrt{9+\frac{1}{x^2}}}{\frac{3}{x} - 2} = \dfrac{\pm 3}{-2} = \mp\dfrac{3}{2}$ $\quad \frac{1}{x^2} \to 0$.

f) $\lim\limits_{x \to -\infty} \left(\sqrt{4x^2+5x} + 2x\right) = +\infty - \infty$

$= \lim\limits_{x \to -\infty} \dfrac{\left(\sqrt{4x^2+5x} + 2x\right).\left(\sqrt{4x^2+5x} - 2x\right)}{\sqrt{4x^2+5x} - 2x}$

$= \lim\limits_{x \to -\infty} \dfrac{4x^2 + 5x - 4x^2}{\sqrt{4x^2+5x} - 2x} = \dfrac{"-\infty}{+\infty}"$

$= \lim\limits_{x \to -\infty} \dfrac{\frac{5x}{x}}{-\sqrt{\frac{4x^2+5x}{x^2}} - \frac{2x}{x}}$

$= \lim\limits_{x \to -\infty} \dfrac{5}{-\sqrt{4+\frac{5}{x}} - 2} = \dfrac{5}{-2-2} = -\dfrac{5}{4}$.

Remarque : $\lim\limits_{x \to +\infty} \left(\sqrt{4x^2+5x} + 2x\right) = +\infty + \infty = +\infty$.