

Exercice

Étudier les limites suivantes :

1. $\lim_{x \rightarrow +\infty} \sqrt{\frac{x-2}{x^2+1}}$

2. $\lim_{\substack{x \rightarrow 9 \\ x < 9}} \frac{1-2\sqrt{x}}{\sqrt{x}-3}$

Correction :

$$1. \lim_{x \rightarrow +\infty} \frac{x-2}{x^2+1} = \lim_{x \rightarrow +\infty} \frac{x}{x^2} = \lim_{x \rightarrow +\infty} \frac{1}{x} = 0$$

$$\text{Or, } \lim_{X \rightarrow 0} \sqrt{X} = 0$$

$$\text{Donc, } \boxed{\lim_{x \rightarrow +\infty} \sqrt{\frac{x-2}{x^2+1}} = 0}$$

$$2. \lim_{x \rightarrow 9^-} 1 - 2\sqrt{x} = -5$$

$$\lim_{x \rightarrow 9^-} \sqrt{x} - 3 = 0^-$$

$$\text{Donc, } \boxed{\lim_{x \rightarrow 9^-} \frac{1 - 2\sqrt{x}}{\sqrt{x} - 3} = +\infty}$$