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## Calcul de limites

### ■ Calculer les limites suivantes

$$1) \lim_{x \rightarrow 0} \frac{\sqrt{x+4} - 2}{x}$$

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

$$3) \lim_{x \rightarrow 3} \frac{x^2 - 9}{\sqrt{x} - \sqrt{3}}$$

$$4) \lim_{x \rightarrow 0} \frac{1 - \sqrt{1-x}}{x}$$

$$5) \lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x-1}$$

$$6) \lim_{x \rightarrow 2} \frac{\sqrt{x+2} - \sqrt{3x-2}}{x-2}$$

$$7) \lim_{x \rightarrow 1} \frac{2 - \sqrt{x+3}}{\sqrt{x-1}}$$

$$8) \lim_{x \rightarrow 1} \frac{\sqrt{x+2} - \sqrt{2x+1}}{\sqrt{x+3} - \sqrt{3x+1}}$$

$$9) \lim_{x \rightarrow 0} \frac{x}{\sqrt{x+1} - 1}$$

$$10) \lim_{x \rightarrow 1} \frac{\sqrt{x} - 1}{x-1}$$

### ■ Solutions

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$$1) \lim_{x \rightarrow 0} \frac{\sqrt{x+4} - 2}{x} = \frac{1}{4}$$

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

$$3) \lim_{x \rightarrow 3} \frac{x^2 - 9}{\sqrt{x} - \sqrt{3}} = 12\sqrt{3}$$

$$4) \lim_{x \rightarrow 0} \frac{1 - \sqrt{1-x}}{x} = \frac{1}{2}$$

$$5) \lim_{x \rightarrow 1} \frac{\sqrt{x+3} - 2}{x-1} = \frac{1}{4}$$

$$6) \lim_{x \rightarrow 2} \frac{\sqrt{x+2} - \sqrt{3x-2}}{x-2} = -\frac{1}{2}$$

$$7) \lim_{x \rightarrow 1} \frac{2 - \sqrt{x+3}}{\sqrt{x-1}} = 0$$

$$8) \lim_{x \rightarrow 1} \frac{\sqrt{x+2} - \sqrt{2x+1}}{\sqrt{x+3} - \sqrt{3x+1}} = \frac{1}{\sqrt{3}}$$

$$9) \lim_{x \rightarrow 0} \frac{x}{\sqrt{x+1} - 1} = 2$$

$$10) \lim_{x \rightarrow 1} \frac{\sqrt{x} - 1}{x-1} = \frac{1}{2}$$

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