## Granične vrednosti

## **Osobine limesa:**

$$ullet \lim_{x o a} c = c \ , \ c = const$$

• 
$$\lim_{x \to a} x = a$$

$$ullet \lim_{x o a} [f(x)\pm g(x)] = \lim_{x o a} f(x) \pm \lim_{x o a} g(x)$$

$$ullet \lim_{x o a} [f(x)\cdot g(x)] = \lim_{x o a} f(x)\cdot \lim_{x o a} g(x)$$

$$ullet \lim_{x o a}rac{f(x)}{g(x)}=rac{\lim\limits_{x o a}f(x)}{\lim\limits_{x o a}g(x)}, \quad ext{ako } \lim\limits_{x o a}g(x)
eq 0$$

$$ullet \lim_{x o a} [f(x)]^n = [\lim_{x o a} f(x)]^n$$

$$ullet \lim_{x o a}\sqrt[n]{f(x)}=\sqrt[n]{\lim_{x o a}f(x)}$$

## Tablični limesi:

$$\bullet \ \lim_{x\to\infty} (1+\tfrac{1}{x})^x = e$$

$$\bullet \lim_{x \to 0} \frac{\sin x}{x} = 1$$

$$\bullet \ \lim_{x\to 0} \frac{e^x-1}{x} = 1$$

$$\bullet \ \lim_{x\to 0} \frac{\ln x}{x} = 1$$

## Limesi za koje je neophodno dokazivanje pre korišćenja:

$$\bullet \lim_{x \to 0} \frac{1 - \cos x}{x^2} = \frac{1}{2}$$

$$\bullet \ \lim_{x\to 0} \frac{tgx}{x} = 1$$

• 
$$\lim_{x \to \infty} \left(1 + \frac{k}{x}\right)^x = e^k$$

$$\bullet \ \lim_{x\to 0} (1+x)^{\frac{1}{x}}=e$$

$$\bullet \ \lim_{x \to 0} \frac{\ln(1+x)}{x} = 1$$