

Sestrojte grafy funkcí

$$613. \text{ a) } y = 1 - x^{100}; \quad \text{б) } y = \lim_{n \rightarrow \infty} (1 - x^{2n}) \quad (-1 \leq x \leq 1).$$

$$614. \text{ a) } y = \frac{x^{100}}{1 + x^{100}} \quad (x \geq 0); \quad \text{б) } y = \lim_{n \rightarrow \infty} \frac{x^n}{1 + x^n} \quad (x \geq 0).$$

$$615. \quad y = \lim_{n \rightarrow \infty} \frac{x^n - x^{-n}}{x^n + x^{-n}} \quad (x \neq 0).$$

$$616. \quad y = \lim_{n \rightarrow \infty} \sqrt{x^2 + \frac{1}{n^2}}.$$

$$617. \quad y = \lim_{n \rightarrow \infty} \sqrt[n]{1 + x^n} \quad (x \geq 0).$$

$$618. \quad y = \lim_{n \rightarrow \infty} \sqrt[n]{1 + x^n + \left(\frac{x^2}{2}\right)^n} \quad (x \geq 0).$$

$$619. \quad y = \lim_{n \rightarrow \infty} \frac{x^{n+2}}{\sqrt{2^{2n} + x^{2n}}} \quad (x \geq 0).$$

$$620. \text{ a) } y = \sin^{1000} x; \quad \text{б) } y = \lim_{n \rightarrow \infty} \sin^{2n} x.$$

$$621. \quad y = \lim_{n \rightarrow \infty} \frac{\ln(2^n + x^n)}{n} \quad (x \geq 0).$$

$$622. \quad y = \lim_{n \rightarrow \infty} (x - 1) \operatorname{arctg} x^n. \quad 624. \quad y = \lim_{t \rightarrow +\infty} \frac{x + e^{tx}}{1 + e^{tx}}.$$

$$623. \quad y = \lim_{n \rightarrow \infty} \sqrt[n]{1 + e^{n(x+1)}}. \quad 625. \quad y = \lim_{t \rightarrow x} \frac{1}{t-x} \ln \frac{t}{x} \quad (x > 0).$$

$$625.1. \quad y = \lim_{n \rightarrow \infty} \frac{x \operatorname{tg}^{2n} \frac{\pi x}{4} + \sqrt{x}}{\operatorname{tg}^{2n} \frac{\pi x}{4} + 1} \quad (x \geq 0).$$

$$625.2. \quad y = \lim_{n \rightarrow \infty} x \operatorname{sgn} [\sin^2(n! \pi x)].$$

625.3 Sestrojte křivku

$$\lim_{n \rightarrow \infty} \sqrt[n]{|x|^n + |y|^n} = 1.$$

627. Najděte asymptoty a sestrojte následující křivky

$$\text{a) } y = \frac{x^3}{x^2 + x - 2};$$

$$\text{г) } y = \frac{xe^x}{e^x - 1};$$

$$\text{б) } y = \sqrt{x^2 + x};$$

$$\text{д) } y = \ln(1 + e^x);$$

$$\text{в) } y = \sqrt[3]{x^2 - x^3};$$

$$\text{е) } y = x + \arccos \frac{1}{x}.$$

Najděte následující limity

$$628. \quad \lim_{n \rightarrow \infty} \left[ \frac{x^{n+1}}{(n+1)!} + \frac{x^{n+2}}{(n+2)!} + \dots + \frac{x^{2n}}{(2n)!} \right].$$

$$629. \quad \lim_{n \rightarrow \infty} [(1+x)(1+x^2)(1+x^4) \dots (1+x^{2^n})], \text{ если } |x| < 1.$$

$$630. \quad \lim_{n \rightarrow \infty} \left( \cos \frac{x}{2} \cos \frac{x}{4} \dots \cos \frac{x}{2^n} \right).$$