II BOB. SONLI FUNKSIYALAR

1-§. $\pi(x)$ – funksiyasi

$\pi(x)$ funksiyasi x ning musbat qiymatlarida aniqlangan bo'lib, x dan katta bo'lmagan tub sonlarning sonini ifodalaydi. $\pi(x)$ ning qiymati tub sonlar jadvalidan foydalanib, bevosita hisoblash yo'li bilan aniqlanadi. x ning katta qiymatlarida esa

$$\pi(x) \approx \frac{x}{Inx} \quad \text{va} \quad \pi(x) \approx \int_2^x \frac{du}{Inu}$$

formulalardan foydalanib taqribiy topiladi .

76. Hisoblang: 1) $\pi(5)$; 2) $\pi(10)$; 3) π (25); 4) $\pi(37)$; 5) $\pi(200)$; 6) $\pi(1000)$.

77. $\pi(x) \approx \frac{x}{Inx}$ formuladan foydalanib, $\pi(x)$ ning taqribiy qiymatini toping va nisbiy xatosini hisoblang. 1)$\pi(100)$, 2) $\pi(500)$, 3) $\pi(1000)$, 4) $\pi(3000)$.

78. $y = \pi(x)$ funksiya`ning grafigini chizing va undan foydalanib, $\pi(x) = \frac{x}{2}$ tenglamani yeching.

79. Chebishyev tengsizligi $a < \pi(x) : \frac{x}{Inx} < b$, (bunda a va b lar $a < b$, $0 < a < 1$, $b > 1$ shartlarni qanoatlantiruvchi o'zgarmas sonlardir) dan foydalanib $x \to \infty$ da $\frac{\pi(x)}{x} \to 0$ ning bajarilishini ko'rsating.

80. p-tub sonlar uchun $\frac{\pi(p-1)}{p-1} < \frac{\pi(p)}{p}$ tengsizlikning, m-murakkab son uchun $\frac{\pi(m)}{m} < \frac{\pi(m-1)}{m-1}$ tengsizlikning bajarilishini isbotlang.