

Mantıksal sembolleri kullanarak aşağıdaki önermeleri yazınız:

- 5.264. $\lim_{x \rightarrow 0} f(x) = \infty$. 5.265. $\lim_{x \rightarrow 1-0} f(x) = -\infty$.
 5.266. $\lim_{x \rightarrow +\infty} f(x) = 0$. 5.267. $\lim_{x \rightarrow +\infty} f(x) = +\infty$.
 5.268. $\lim_{x \rightarrow +0} f(x) = 0$. 5.269. $\lim_{x \rightarrow \infty} f(x) = 2$.
 5.270. $\lim_{x \rightarrow -\infty} f(x) = -\infty$. 5.271. $\lim_{x \rightarrow -\infty} f(x) = \infty$.

Kesir rasyonel ifadelerin limitlerini bulunuz:

- 5.272. $\lim_{x \rightarrow 0} \frac{x^2 - 2}{3x^2 - 5x + 1}$. 5.273. $\lim_{x \rightarrow 3} \frac{x^2 + 3}{x^2 - 3}$.
 5.274. $\lim_{x \rightarrow -3} \frac{x}{|x + 3|}$. 5.275. $\lim_{x \rightarrow \sqrt{2}} \frac{x^2 - 2}{x^4 + x^2 + 1}$.
 5.276. $\lim_{x \rightarrow 2 \pm 0} \left(\frac{1}{2 - x} - \frac{3}{8 - x^3} \right)$. 5.277. $\lim_{x \rightarrow 1} \frac{x^2 - 2x + 1}{x^3 - x}$.
 5.278. $\lim_{x \rightarrow 1} \frac{x^m - 1}{x^n - 1}; m, n \in \mathbb{N}$. 5.279. $\lim_{h \rightarrow 0} \frac{(x + h)^3 - x^3}{h}$.
 5.280. $\lim_{x \rightarrow 1/2} \frac{8x^3 - 1}{6x^2 - 5x + 1}$. 5.281. $\lim_{x \rightarrow a} \frac{x^2 - (a + 1)x + a}{x^3 - a^3}$.
 5.282. $\lim_{x \rightarrow \infty} \left(\frac{x^3}{2x^2 - 1} - \frac{x^2}{2x + 1} \right)$. 5.283. $\lim_{x \rightarrow \infty} \frac{x^4 - 5x}{x^2 - 3x + 1}$.
 5.284. $\lim_{x \rightarrow \infty} \frac{(x + 1)^5 + (x + 2)^5 + \dots + (x + n)^5}{x^5 + n^5}, n \in \mathbb{N}$.
 5.285. $\lim_{x \rightarrow 1} \left(\frac{x + 2}{x^2 - 5x + 4} + \frac{x - 4}{3(x^2 - 3x + 2)} \right)$.
 5.286. $\lim_{x \rightarrow \infty} \left(\frac{3x^2}{2x + 1} - \frac{(2x - 1)(3x^2 + x + 2)}{4x^2} \right)$.

Limitleri hesaplayınız:

- 5.288. $\lim_{x \rightarrow \infty} \frac{3x + 1}{5x + \sqrt[3]{x}}$. 5.289. $\lim_{x \rightarrow 10} \frac{\sqrt{x - 1} - 3}{x - 10}$.
 5.290. $\lim_{x \rightarrow 1} \frac{\sqrt{x} + \sqrt{x - 1} - 1}{\sqrt{x^2 - 1}}$.
 5.291. $\lim_{h \rightarrow 0} \frac{\sqrt{x + h} - \sqrt{x}}{h}, x > 0$.

$$\begin{aligned}
5.292. \quad & \lim_{x \rightarrow 1} \frac{x^2 - \sqrt{x}}{\sqrt{x} - 1}. & 5.293. \quad & \lim_{x \rightarrow 0} \frac{|\sqrt{1+x} - 1|}{x^2}. \\
5.294. \quad & \lim_{x \rightarrow +\infty} \frac{\sqrt{2x}}{\sqrt{3x + \sqrt{3x + \sqrt{3x}}}}. \\
5.295. \quad & \lim_{x \rightarrow 0} \frac{\sqrt[n]{x+1} - 1}{x}. & 5.296. \quad & \lim_{x \rightarrow 1} \frac{\sqrt[n]{x} - 1}{\sqrt[m]{x} - 1}; m, n \in \mathbb{N}. \\
5.297. \quad & \lim_{x \rightarrow 0} \frac{\sqrt{x^2 + 4} - 2}{\sqrt{x^2 + 9} - 3}. & 5.298. \quad & \lim_{x \rightarrow 0} \frac{\sqrt{2+x} - \sqrt{2-x}}{\sqrt[3]{2+x} - \sqrt[3]{2-x}}. \\
5.299. \quad & \lim_{x \rightarrow +\infty} (\sqrt{x-a} - \sqrt{x}). \\
5.300. \quad & \lim_{x \rightarrow +\infty} \left(\sqrt{x + \sqrt{x + \sqrt{x}}} - \sqrt{x} \right). \\
5.301. \quad & \lim_{x \rightarrow \infty} (\sqrt{4x^2 - 7x + 4} - 2x). \\
5.302. \quad & \lim_{x \rightarrow \infty} x^{3/2} (\sqrt{x^3 + 2} - \sqrt{x^3 - 2}).
\end{aligned}$$

Birinci meşhur limiti kullanarak limitleri bulunuz:

$$\begin{aligned}
5.303. \quad & \lim_{x \rightarrow 0} \frac{\sin 3x}{x}. & 5.304. \quad & \lim_{x \rightarrow \pi} \frac{\sin 7x}{\operatorname{tg} 3x}. \\
5.305. \quad & \lim_{x \rightarrow 0} x \operatorname{ctg} \pi x. & 5.306. \quad & \lim_{x \rightarrow 0} \frac{3 \arcsin x}{4x}. \\
5.307. \quad & \lim_{x \rightarrow 0} \frac{1 - \cos 2x}{x^2}. & 5.308. \quad & \lim_{x \rightarrow 0} \frac{\cos \alpha x - \cos \beta x}{x^2}, \alpha \neq \beta. \\
5.309. \quad & \lim_{x \rightarrow 0} \left(\frac{1}{\sin x} - \operatorname{ctg} x \right). & 5.310. \quad & \lim_{x \rightarrow \alpha} \operatorname{tg} \frac{\pi x}{2\alpha} \sin \frac{x - \alpha}{2}. \\
5.311. \quad & \lim_{x \rightarrow \pi/4} \frac{\sqrt{2} - 2 \cos x}{\pi - 4x}. & 5.312. \quad & \lim_{x \rightarrow \pi/2} \left(\frac{\pi}{2} - x \right) \operatorname{tg} x. \\
5.313. \quad & \lim_{\alpha \rightarrow +0} \frac{\sin \alpha^n}{\sin^m \alpha}; n, m \in \mathbb{Z}. \\
5.314. \quad & \lim_{\alpha \rightarrow 0} \frac{\sin 2\alpha - \operatorname{tg} 2\alpha}{\alpha^3}. \\
5.315. \quad & \lim_{\alpha \rightarrow 0} \frac{(1 - \cos \alpha)^2}{\operatorname{tg}^2 \alpha - \sin^2 \alpha}. & 5.316. \quad & \lim_{x \rightarrow \pi} \frac{1 + \cos 5x}{1 - \cos 4x}.
\end{aligned}$$

$\lim_{x \rightarrow x_0} u(x) = 1, \lim_{x \rightarrow x_0} v(x) = \infty$ olmak üzere $\lim_{x \rightarrow x_0} u(x)^{v(x)}$

Limitini Meşhur limiti kullanarak bulunuz:

$$5.320. \lim_{x \rightarrow \infty} \left(\frac{x+3}{x-2} \right)^{2x+1}.$$

$$5.321. \lim_{x \rightarrow \infty} \left(\frac{x^2+5}{x^2-5} \right)^{x^2}.$$

$$5.322. \lim_{x \rightarrow 0} (\cos x)^{1/x^2}.$$

$$5.323. \lim_{x \rightarrow 0} (1 + \operatorname{tg}^2 \sqrt{x})^{3/x}.$$

$$5.324. \lim_{x \rightarrow \infty} x(\ln(2+x) - \ln x).$$

$$5.325. \lim_{x \rightarrow 0} \frac{1}{x} \ln \sqrt{\frac{1+x}{1-x}}.$$

$$5.326. \lim_{x \rightarrow \infty} x(a^{1/x} - 1).$$

$$5.327. \lim_{x \rightarrow 1} \frac{a^x - a}{x - 1}.$$

$$5.328. \lim_{x \rightarrow a} \frac{\log_a x - 1}{x - a}.$$

$$5.329. \lim_{x \rightarrow 0} \frac{e^{ax} - e^{bx}}{x}.$$

$$5.330. \lim_{x \rightarrow 0} (\cos x)^{1/\sin x}.$$

$$5.331. \lim_{x \rightarrow 0} \frac{\ln \cos x}{x^2}.$$

$$5.332. \lim_{x \rightarrow 0} (\cos x + \sin x)^{1/x}.$$

$$5.333. \lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^{\frac{\sin x}{x - \sin x}}.$$

Tektarafli limitleri bulunuz:

$$5.338. \lim_{x \rightarrow 3 \pm 0} \frac{x-3}{|x-3|}.$$

$$5.339. \lim_{x \rightarrow 2 \pm 0} \frac{2+x}{4-x^2}.$$

$$5.340. \lim_{x \rightarrow \pm 0} (2+x)^{1/x}.$$

$$5.341. \lim_{x \rightarrow 2 \pm 0} 7^{\frac{1}{2-x}}.$$

$$5.342. \lim_{x \rightarrow \pm \infty} \operatorname{arctg} x.$$

$$5.343. \lim_{x \rightarrow \pm \infty} [1/x].$$

$$5.344. \lim_{x \rightarrow \pi/4 \pm 0} \frac{|\operatorname{tg}(4x - \pi)|}{2x - \pi/2}.$$

$$5.345. \lim_{x \rightarrow 2\pi \pm 0} \frac{x^2}{\cos x - 1}.$$

Verilmiş $\alpha(x)$ fonksiyonu ile $x \rightarrow 0$ şartında $\alpha \sim \beta$ olacak şekilde $\beta(x) = ax^n$ fonksiyonunu bulunuz:

$$5.349. \alpha(x) = \frac{3\sqrt{x^3}}{1-x}.$$

$$5.350. \alpha(x) = \sqrt[3]{x^2} - \sqrt{x^3}.$$

$$5.351. \alpha(x) = \frac{1 - \cos x}{x}.$$

$$5.352. \alpha(x) = \operatorname{tg} x - \sin x.$$

$$5.353. \alpha(x) = \sin(\sqrt{x+2} - \sqrt{2}).$$

$$5.354. \alpha(x) = 3 \sin^3 x - x^4.$$

5.355. $\alpha(x) = \sqrt[3]{1 + \sqrt[3]{x}} - 1.$

5.356. $\alpha(x) = \sqrt{1 + 2x} - 1 - \sqrt{x}.$

5.357. $\alpha(x) = 3^{\sqrt{x}} - 1.$ **5.358.** $\alpha(x) = 2^x - \cos x.$

Aşağıdakilerden hangilerinin doğru olduğunu belirleyiniz:

- 1) $x^2 = o(x)$ a) $x \rightarrow 0$, b) $x \rightarrow \infty$;
 2) $x = o(x^2)$ a) $x \rightarrow 0$, b) $x \rightarrow \infty$; iken
 3) $\sqrt{x^2 + x} - x = o(1)$ a) $x \rightarrow +\infty$, b) $x \rightarrow -\infty$;
 4) $\ln(1 + e^x) = o(1)$ a) $x \rightarrow +\infty$, b) $x \rightarrow -\infty$. iken

Aşağıdakilerden hangilerinin $x \rightarrow \infty$ şartında doğru olduğunu belirleyiniz:

- 1) $100x + x \sin x = O(x)$; 2) $x = O(100x + x \sin x)$;
 3) $x + x \sin x = O(x)$; 4) $x = O(x + x \sin x)$;
 5) $\sqrt{x^2 + 1} - |x| = O(1/x)$; 6) $1/x = O(\sqrt{x^2 + 1} - |x|).$

$x \rightarrow x_0$ şartında $f(x) \asymp g(x)$ olduğunu inceleyiniz:

- 1) $f(x) = \frac{x^2 \arctg x}{x^5 + x^2 + 1}$, $g(x) = x^3$, $x_0 = 0$;
 2) $f(x) = \sqrt{x^2 + 1} - x$, $g(x) = x$, $x_0 = -\infty$;
 3) $f(x) = \sqrt[3]{1 + x^2} - \sqrt[3]{1 - x^2}$, $g(x) = x^2$, $x_0 = 0$;
 4) $f(x) = \frac{\sin(1/(x+1))}{\sqrt[3]{x + \sqrt{x}}}$, $g(x) = \frac{1}{\sqrt[6]{x}}$, $x_0 = 0$.

$x \rightarrow x_0$ şartında $\alpha(x) \sim \alpha_1(x)$ ve $\beta(x) \sim \beta_1(x)$ iken

$\lim_{x \rightarrow x_0} \frac{\alpha(x)}{\beta(x)} = \lim_{x \rightarrow x_0} \frac{\alpha_1(x)}{\beta_1(x)}$ olduğunu kullanarak limitleri bulunuz:

5.366. $\lim_{x \rightarrow 1} \frac{1 - x}{\lg x}.$

5.367. $\lim_{x \rightarrow 0} \frac{\cos x - \cos 2x}{1 - \cos x}.$

5.368. $\lim_{x \rightarrow 1/2} \frac{4x^2 - 1}{\arcsin(1 - 2x)}.$

5.369. $\lim_{x \rightarrow 0} \frac{\arctg x^2}{\arcsin 3x \cdot \sin(x/2)}.$

5.370. $\lim_{x \rightarrow 0} \frac{1 - \cos 4x}{2 \sin^2 x + x \tg 7x}.$

5.371. $\lim_{x \rightarrow \pi/4} \frac{2\sqrt{2} - (\cos x + \sin x)^3}{1 - \sin 2x}.$

Fonksiyonun sürekliliğini inceleyiniz, süreksizlik noktaları varsa tipini belirleyiniz:

$$5.387. f(x) = \frac{1}{x^2(x-1)}.$$

$$5.388. f(x) = \frac{|3x-5|}{3x-5}.$$

$$5.389. f(x) = \frac{(1+x)^n - 1}{x}, n \in \mathbb{N}. \quad 5.390. f(x) = \frac{1}{x} \sin x.$$

$$5.391. f(x) = 1 - x \sin \frac{1}{x}.$$

$$5.392. f(x) = 3^{x/(4-x^2)}.$$

$$5.393. f(x) = (x+1) \operatorname{arctg} \frac{1}{x}.$$

$$5.394. f(x) = \frac{|x+2|}{\operatorname{arctg}(x+2)}.$$

$$5.395. f(x) = \frac{3^{1/(x-2)} - 1}{3^{1/(x-2)} + 1}.$$

$$5.396. f(x) = \frac{1}{x} \ln \frac{1+x}{1-x}.$$

$$5.397. f(x) = \frac{1/x - 1/(x+1)}{1/(x-1) - 1/x}.$$

$$5.398. f(x) = \frac{1 - \cos x}{x^2}.$$

$$5.399. f(x) = \begin{cases} 2^x, & -1 \leq x < 1, \\ x-1, & 1 < x \leq 4, \\ 1, & x = 1. \end{cases}$$

$$5.400. f(x) = \frac{1}{2^{1/(1-x)} + 1}.$$

$$5.401. f(x) = \begin{cases} 2\sqrt{x}, & 0 \leq x \leq 1, \\ 4-2x, & 1 < x < 2,5, \\ 2x-7, & 2,5 \leq x \leq 4. \end{cases}$$

$$5.402. f(x) = \begin{cases} \cos x, & -\pi/2 \leq x < \pi/4, \\ 1, & x = \pi/4, \\ x^2 - \frac{\pi^2}{16}, & \pi/4 < x \leq \pi. \end{cases}$$

Parametrelerin hangi değerlerinde $f(x)$ fonksiyonu sürekli olur?

$$5.384. f(x) = \begin{cases} \frac{x^2 + x - 2}{x - 1}, & x \neq 1, \\ A, & x = 1. \end{cases}$$

$$5.385. f(x) = \begin{cases} x-1, & x \leq 1, \\ ax^2 - 2, & x > 1. \end{cases}$$

$$5.386. f(x) = \begin{cases} ax + 1, & x \leq \pi/2, \\ \sin x + b, & x > \pi/2. \end{cases}$$

471. – 649. Fonksiyonların türevlerini bulunuz:

471. 1) $y = (x^2 - 3x + 3)(x^2 + 2x - 1);$

2) $y = (x^3 - 3x + 2)(x^4 + x^2 - 1);$ 3) $y = (\sqrt{x} + 1)\left(\frac{1}{\sqrt{x}} - 1\right);$

4) $y = \left(\frac{2}{\sqrt{x}} - \sqrt{3}\right)\left(4x\sqrt[3]{x} + \frac{\sqrt[3]{x^2}}{3x}\right);$

5) $y = (\sqrt[3]{x} + 2x)(1 + \sqrt[3]{x^2} + 3x);$

6) $y = (x^2 - 1)(x^2 - 4)(x^2 - 9);$

7) $y = (1 + \sqrt{x})(1 + \sqrt{2x})(1 + \sqrt{3x}).$

472. $y = \frac{x+1}{x-1}.$

473. $y = \frac{x}{x^2+1}.$

474. $s = \frac{3t^2+1}{t-1}.$

475. $u = \frac{v^3-2v}{v^2+v+1}.$

476. $y = \frac{ax+b}{cx+d}.$

477. $z = \frac{x^2+1}{3(x^2-1)} + (x^2-1)(1-x).$

478. $u = \frac{v^5}{v^3-2}.$

479. $y = \frac{1-x^3}{1+x^3}.$

480. $y = \frac{2}{x^3-1}.$

481. $u = \frac{v^2-v+1}{a^2-3}.$

482. $y = \frac{1-x^3}{\sqrt{\pi}}.$

483. $z = \frac{1}{t^2+t+1}.$

484. $s = \frac{1}{t^2-3t+6}.$

485. $y = \frac{2x^4}{b^2-x^2}.$

486. $y = \frac{x^2+x-1}{x^3+1}.$

487. $y = \frac{3}{(1-x^2)(1-2x^3)}.$

488. $y = \frac{ax+bx^2}{am+bm^2}.$

489. $y = \frac{a^2b^2c^2}{(x-a)(x-b)(x-c)}.$

490. $f(x) = (x^2 + x + 1)(x^2 - x + 1);$ iken $f'(0)$ ve $f'(1)$ bulunuz.

491. $F(x) = (x-1)(x-2)(x-3);$ iken $F'(0)$, $F'(1)$ ve $F'(2)$ bulunuz.

492. $F(x) = \frac{1}{x+2} + \frac{3}{x^2+1};$ ise $F'(0)$ ve $F'(-1)$ bulunuz.

493. $s(t) = \frac{3}{5-t} + \frac{t^2}{5};$ ise $s'(0)$ ve $s'(2)$ bulunuz.

494. $y(x) = (1+x^3)\left(5 - \frac{1}{x^2}\right);$ ise $y'(1)$ ve $y'(a)$ bulunuz.

495. $\rho(\varphi) = \frac{\varphi}{1-\varphi^2};$ ise $\rho'(2)$ ve $\rho'(0)$ bulunuz.

$$499. v = \frac{(s+4)^2}{s+3}.$$

$$501. y = \frac{1 + \sqrt{x}}{1 + \sqrt{2x}}.$$

$$503. y = \sqrt{1 - x^2}.$$

$$505. u = \left(\frac{v}{1-v} \right)^m.$$

$$507. y = \frac{1}{\sqrt{a^2 - x^2}}.$$

$$509. y = \frac{1}{\sqrt{1 - x^4 - x^8}}.$$

$$511. y = \frac{x^2}{\sqrt{x^2 + a^2}}.$$

$$513. y = \frac{1}{\sqrt[3]{2x-1}} + \frac{5}{\sqrt[3]{(x^2+2)^3}}.$$

$$514. u(v) = (v^2 + v + 2)^{3/2}; \text{ iken } u'(1) \text{ bulunuz.}$$

$$515. y(x) = \sqrt{\frac{x+1}{x-1}}; \text{ iken } y'(2) \text{ bulunuz.}$$

$$516. y(x) = \sqrt{\frac{1-x^2}{1+x^2}}; \text{ iken } y'(0) \text{ bulunuz.}$$

$$500. s = \frac{t^3}{(1-t)^2}.$$

$$502. y = \frac{1 - \sqrt[3]{2x}}{1 + \sqrt[3]{2x}}.$$

$$504. y = \left(1 - 2x^{\frac{1}{2}} \right)^4.$$

$$506. y = \frac{2}{(x^2 - x + 1)^3}.$$

$$508. y = \sqrt[3]{\frac{1}{1+x^2}}.$$

$$510. y = \frac{1+x}{\sqrt{1-x}}.$$

$$512. u = \frac{1}{v - \sqrt{a^2 + v^2}}.$$

Trigonometrik fonksiyonların türevini bulunuz:

$$517. y = \sin x + \cos x.$$

$$519. y = \frac{\operatorname{tg} x}{x}.$$

$$521. z = \frac{\sin \alpha}{\alpha} + \frac{\alpha}{\sin \alpha}.$$

$$523. y = \frac{x}{\sin x + \cos x}.$$

$$525. y = \cos^2 x.$$

$$527. y = \cos x - \frac{1}{3} \cos^3 x.$$

$$529. y = \frac{1}{3} \operatorname{tg}^3 x - \operatorname{tg} x + x.$$

$$531. y = \sec^2 x + \operatorname{cosec}^2 x.$$

$$533. y = a \cos \frac{x}{3}.$$

$$518. y = \frac{x}{1 - \cos x}.$$

$$520. \rho = \varphi \sin \varphi + \cos \varphi.$$

$$522. s = \frac{\sin t}{1 + \cos t}.$$

$$524. y = \frac{x \sin x}{1 + \operatorname{tg} x}.$$

$$526. y = \frac{1}{4} \operatorname{tg}^4 x.$$

$$528. y = 3 \sin^2 x - \sin^3 x.$$

$$530. y = x \sec^2 x - \operatorname{tg} x.$$

$$532. y = \sin 3x.$$

$$534. y = 3 \sin (3x + 5).$$

$$535. y = \operatorname{tg} \frac{x+1}{2}.$$

$$537. y = \sin \frac{1}{x}.$$

$$539. y = \cos^3 4x.$$

$$541. y = \sin \sqrt{1+x^2}.$$

$$543. y = (1 + \sin^2 x)^4.$$

$$545. y = \cos^2 \frac{1 - \sqrt{x}}{1 + \sqrt{x}}.$$

$$536. y = \sqrt{1 + 2 \operatorname{tg} x}.$$

$$538. y = \sin (\sin x).$$

$$540. y = \sqrt{\operatorname{tg} \frac{x}{2}}.$$

$$542. y = \operatorname{ctg} \sqrt[3]{1+x^2}.$$

$$544. y = \sqrt{1 + \operatorname{tg} \left(x + \frac{1}{x} \right)}.$$

$$546. y = \sin^2 (\cos 3x).$$

Ters trigonometrik fonksiyonlar:

$$548. y = x \arcsin x.$$

$$550. y = (\arcsin x)^2.$$

$$552. y = \frac{1}{\arcsin x}.$$

$$554. y = \frac{\arccos x}{x}.$$

$$556. y = (\arccos x + \arcsin x)^n.$$

$$557. y = \operatorname{arcsec} x.$$

$$559. y = \frac{\arcsin x}{\sqrt{1-x^2}}.$$

$$561. y = \arcsin (x-1).$$

$$563. y = \operatorname{arctg} x^2.$$

$$565. y = \arcsin (\sin x).$$

$$567. y = \sqrt{1 - (\arccos x)^2}.$$

$$569. y = \frac{1}{2} \sqrt[4]{\arcsin \sqrt{x^2 + 2x}}.$$

$$570. y = \arcsin \frac{\sin \alpha \sin x}{1 - \cos \alpha \sin x}.$$

$$572. y = \operatorname{arctg} (x - \sqrt{1+x^2}).$$

$$549. y = \frac{\arcsin x}{\arccos x}.$$

$$551. y = x \arcsin x + \sqrt{1-x^2}.$$

$$553. y = x \sin x \operatorname{arctg} x.$$

$$555. y = \sqrt{x} \operatorname{arctg} x.$$

$$558. y = \frac{x}{1+x^2} - \operatorname{arctg} x.$$

$$560. y = \frac{x^2}{\operatorname{arctg} x}.$$

$$562. y = \arccos \frac{2x-1}{\sqrt{3}}.$$

$$564. y = \arcsin \frac{2}{x}.$$

$$566. y = \operatorname{arctg}^2 \frac{1}{x}.$$

$$568. y = \arcsin \sqrt{\frac{1-x}{1+x}}.$$

$$571. y = \arccos \frac{b+a \cos x}{a+b \cos x}.$$

Logaritmik fonksiyonlar:

$$573. y = x^2 \log_3 x.$$

$$575. y = x \lg x.$$

$$574. y = \ln^2 x.$$

$$576. y = \sqrt{\ln x}.$$

$$577. y = \frac{x-1}{\log_2 x}.$$

$$579. y = \frac{1}{\ln x}.$$

$$581. y = \frac{1 - \ln x}{1 + \ln x}.$$

$$583. y = x^n \ln x.$$

$$585. y = \ln(1 - 2x).$$

$$587. y = \ln \sin x.$$

$$589. y = \ln \operatorname{tg} x.$$

$$591. y = \ln^4 \sin x.$$

$$593. y = (1 + \ln \sin x)^n.$$

$$595. y = \ln \operatorname{arctg} \sqrt{1 + x^2}.$$

$$597. y = \sqrt[3]{\ln \sin \frac{x+3}{4}}.$$

$$578. y = x \sin x \ln x.$$

$$580. y = \frac{\ln x}{x^n}.$$

$$582. y = \frac{\ln x}{1 + x^2}.$$

$$584. y = \sqrt{1 + \ln^2 x}.$$

$$586. y = \ln(x^2 - 4x).$$

$$588. y = \log_3(x^2 - 1).$$

$$590. y = \ln \arccos 2x.$$

$$592. y = \operatorname{arctg}[\ln(ax + b)].$$

$$594. y = \log_2(\log_3(\log_5 x)).$$

$$596. y = \arcsin^2[\ln(a^3 + x^3)].$$

Üstel Fonksiyonlar:

$$598. y = 2^x.$$

$$599. y = 10^x.$$

$$600. y = \frac{1}{3^x}.$$

$$601. y = \frac{x}{4^x}.$$

$$602. y = x \cdot 10^x.$$

$$603. y = xe^x.$$

$$604. y = \frac{x}{e^x}.$$

$$605. y = \frac{x^3 + 2x}{e^x}.$$

$$606. y = e^x \cos x.$$

$$607. y = \frac{e^x}{\sin x}.$$

$$608. y = \frac{\cos x}{e^x}.$$

$$609. y = \frac{x}{2^{\ln x}}.$$

$$610. y = x^3 - 3x.$$

$$611. y = \sqrt{1 + e^x}.$$

$$612. y = (x^2 - 2x + 3)e^x.$$

$$613. y = \frac{1 + e^x}{1 - e^x}.$$

$$614. y = \frac{1 - 10^x}{1 + 10^x}.$$

$$615. y = \frac{e^x}{1 + x^2}.$$

$$616. y = xe^x (\cos x + \sin x).$$

$$617. y = e^{-x}.$$

$$618. y = 10^{2x-3}.$$

$$619. y = e^{\sqrt{x+1}}.$$

$$620. y = \sin(2^x).$$

$$621. y = 3^{\sin x}.$$

$$622. y = a^{\sin^3 x}.$$

$$623. y = e^{\arcsin 2x}.$$

$$624. y = 2^{3^x}.$$

$$625. y = e^{\sqrt{\ln x}}.$$

$$626. y = \sin(e^{x^2+3x-2}).$$

$$627. y = 10^{1 - \sin^4 3x}.$$

$$628. y = e^{\sqrt{\ln(ax^2 + bx + c)}}.$$

$$629. y = \ln \sin \sqrt[3]{\operatorname{arctg} e^{3x}}.$$

Hiperbolik Fonksiyonlar:

634. $y = \operatorname{sh}^3 x$. 635. $y = \ln \operatorname{ch} x$.
 636. $y = \operatorname{arctg} (\operatorname{th} x)$. 637. $y = \operatorname{th} (1 - x^2)$.
 638. $y = \operatorname{sh}^2 x + \operatorname{ch}^2 x$. 639. $y = \operatorname{ch} (\operatorname{sh} x)$.
 640. $y = \sqrt{\operatorname{ch} x}$. 641. $y = e^{\operatorname{ch}^2 x}$.
 642. $y = \operatorname{th} (\ln x)$. 643. $y = x \operatorname{sh} x - \operatorname{ch} x$.
 644. $y = \sqrt[4]{(1 + \operatorname{th}^2 x)^3}$. 645. $y = \frac{1}{2} \operatorname{th} \frac{x}{2} - \frac{1}{6} \operatorname{th}^3 \frac{x}{2}$.
 646. $y = \sqrt[4]{\frac{1 + \operatorname{th} x}{1 - \operatorname{th} x}}$. 647. $y = \frac{1}{2} \operatorname{th} x + \frac{\sqrt{2}}{8} \ln \frac{1 + \sqrt{2} \operatorname{th} x}{1 - \sqrt{2} \operatorname{th} x}$.
 648. $y = \frac{1}{x} \operatorname{ch} 2x + \sqrt{x} \operatorname{sh} 2x$. 649. $y = x^2 e^{3x} \operatorname{csch} x$.

logaritmik diferansiyelleme yöntemiyle türevi bulunuz:

650. $y = x^{x^2}$. 651. $y = x^{x^x}$.
 652. $y = (\sin x)^{\cos x}$. 653. $y = (\ln x)^x$.
 654. $y = (x + 1)^{2/x}$. 655. $y = x^3 e^{x^2} \sin 2x$.
 656. $y = \frac{(x-2)^2 \sqrt[3]{x+1}}{(x-5)^3}$. 657. $y = x^{\ln x}$.
 658. $y = \frac{(x+1)^3 \sqrt[4]{x-2}}{\sqrt[5]{(x-3)^2}}$. 659. $y = \sqrt{x \sin x} \sqrt{1 - e^x}$.
 660. $y = \sqrt{\frac{1 - \arcsin x}{1 + \arcsin x}}$. 661. $y = x^{1/x}$.
 662. $y = x^{\sin x}$. 663. $y = \left(\frac{x}{1+x}\right)^x$.
 664. $y = 2x^{\sqrt{x}}$. 665. $y = (x^2 + 1)^{\sin x}$.
 666. $y = \sqrt[3]{\frac{x(x^2+1)}{(x^2-1)^2}}$.

6.144. $y(1) = 1$ olmak üzere $x^3 - 2x^2y^2 + 5x + y - 5 = 0$

denkleminin tanımladığı $y = y(x)$ kapalı fonksiyonunun y'_x türevini $x = 1$ noktasında bulunuz.

6.145. $y(0) = 1$ olmak üzere $e^y + xy = e$ denkleminin tanımladığı $y = y(x)$ kapalı fonksiyonunun y'_x türevini $x = 0$ noktasında bulunuz.

6.146.– 6.157. Verilmiş denklemin tanımladığı $y = y(x)$ kapalı fonksiyonun y'_x türevini bulunuz.

6.146. $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$.

6.147. $x^4 + y^4 = x^2y^2$.

$$6.148. \sqrt{x} + \sqrt{y} = \sqrt{a}, \quad a > 0. \quad 6.149. 2y \ln y = x.$$

$$6.150. e^x \sin y - e^y \cos x = 0. \quad 6.151. \sin(xy) + \cos(xy) = 0.$$

$$6.152. 2^x + 2^y = 2^{x+y}. \quad 6.153. x - y = \arcsin x - \arcsin y.$$

$$6.154. \operatorname{arctg} \frac{y}{x} = \ln \sqrt{x^2 + y^2}. \quad 6.155. xy = \operatorname{arctg} \frac{x}{y}.$$

$$6.156. x^y = y^x. \quad 6.157. a^{x/y} = \left(\frac{x}{y} \right)^a.$$

6.168.– 6.179. $x = \varphi(t)$, $y = \psi(t)$, $t \in (\alpha, \beta)$ parametrik denklemleriyle verilmiş $y = y(x)$ fonksiyonunun y'_x türevini bulunuz:

$$6.168. x = 2t, \quad y = 3t^2 - 5t, \quad t \in (-\infty, +\infty).$$

$$6.169. x = t^3 + 2, \quad y = 0,5t^2, \quad t \in (-\infty, +\infty).$$

$$6.170. x = \frac{1}{t+1}, \quad y = \left(\frac{t}{t+1} \right)^2, \quad t \neq -1.$$

$$6.171. x = 2^{-t}, \quad y = 2^{2t}, \quad t \in (-\infty, +\infty).$$

$$6.172. x = a \cos \varphi, \quad y = b \sin \varphi, \quad \varphi \in (0, \pi).$$

$$6.173. x = \operatorname{tg} t, \quad y = \sin 2t + 2 \cos 2t, \quad t \in \left(-\frac{\pi}{2}, \frac{\pi}{2} \right).$$

$$6.174. x = \arccos \frac{1}{\sqrt{1+t^2}}, \quad y = \arcsin \frac{t}{\sqrt{1+t^2}}, \quad t \in (0, +\infty).$$

$$6.175. x = \ln(1+t^2), \quad y = t - \operatorname{arctg} t, \quad t \in (0, +\infty).$$

$$6.176. x = 3 \log_2 \operatorname{ctg} t, \quad y = \operatorname{tg} t + \operatorname{ctg} t, \quad t \in \left(0, \frac{\pi}{2} \right).$$

$$6.177. x = \arcsin(t^2 - 1), \quad y = \arccos \frac{t}{2}, \quad t \in (0, \sqrt{2}).$$

6.180.– 6.183. y'_x türevini gösterilen noktada bulunuz:

$$6.180. x = t \ln t, \quad y = \frac{\ln t}{t}, \quad t = 1.$$

$$6.181. x = t(t \cos t - 2 \sin t), \quad y = t(t \sin t + 2 \cos t), \quad t = \frac{\pi}{4}.$$

$$6.182. x = e^t \cos t, \quad y = e^t \sin t, \quad t = \frac{\pi}{6}.$$

$$6.183. x = \frac{3at}{1+t^2}, \quad y = \frac{3at^2}{1+t^2}, \quad t = 2.$$

$y = f(x)$ fonksiyonu grafiğine gösterilen noktada teğet ve normal doğruların denklemlerini yazınız:

6.235. $y = x^2 - 5x + 4, x_0 = -1.$

6.236. $y = x^3 + 2x^2 - 4x - 3, x_0 = -2.$

6.237. $y = \sqrt{x}, x_0 = 4.$

6.238. $y = \operatorname{tg} 2x, x_0 = 0.$

6.239. $y = \ln x, x_0 = 1.$

6.240. $y = e^{1-x^2}, x_0 = -1.$

6.241. $x = \frac{1+t}{t^3}, y = \frac{3}{2t^2} + \frac{1}{2t}, t \neq 0$ Eğrisine $M_0(2, 2)$

noktasında teğet ve normal doğruların denklemlerini yazınız.

6.242. $x = t \cos t, y = t \sin t, t \in (-\infty, +\infty),$ Eğrisine $t = 0$ ve $t = \pi/4$ noktalarında teğet ve normal doğruların denklemlerini yazınız.

Aşağıdaki fonksiyonların 2. mertebeden türevlerini bulunuz:

6.184. $y = \cos^2 x.$ **6.185.** $y = \operatorname{arctg} x^2.$

6.186. $y = \log_2 \sqrt[3]{1-x^2}.$ **6.187.** $y = e^{-x^2}.$

6.188. $y = \frac{\arcsin x}{\sqrt{1-x^2}}.$ **6.189*.** $y = x^{\sqrt{x}}.$

Leibniz kuralına göre türevleri bulunuz:

6.208. $y = (x^2 + x + 1) \sin x,$ ise $y^{(15)}.$

6.209. $y = (x^2 - x)e^x,$ ise $y^{(20)}.$

6.210. $y = \sin x \cdot e^{-x},$ ise $y^{(5)}.$

6.211. $y = x \log_2 x,$ ise $y^{(10)}.$

6.212. $y = x \operatorname{sh} x,$ ise $y^{(100)}.$

Denklemin tanımladığı $y(x)$ kapalı fonksiyonun y'' türevini bulunuz:

6.223. $y^2 = 2px.$ **6.224.** $y = 1 + xe^y.$

6.225. $y = \operatorname{tg}(x + y).$ **6.226.** $e^{x-y} = xy.$

Parametrik biçimde verilmiş fonsiyonun y''_{xx} türevini bulunuz:

6.230. $x = \sec t, y = \operatorname{tg} t, t \in \left(0, \frac{\pi}{2}\right).$

6.231. $x = \arcsin t, y = \ln(1 - t^2), t \in (-1, 1).$

6.232. $x = \operatorname{arctg} t, y = \ln(1 + t^2), t \in (-\infty, +\infty).$

6.233. $x = a \cos^3 t, y = a \sin^3 t, t \in \left(0, \frac{\pi}{2}\right).$

Eğrilerin hangi açı altında kesiştiğini belirleyiniz:

6.254. $y = x^2$ и $y = x^3.$

6.255. $y = (x - 2)^2$ и $y = 4x - x^2 + 4.$

6.256. $y = \sin x$ и $y = \cos x, x \in [0, 2\pi].$

6.257. $x^2 + y^2 = 8ax$ и $y^2 = \frac{x}{2a - x}.$

Fonksiyonun $dy = f'(x) dx$ diferansiyelini bulunuz:

6.285. $x\sqrt{a^2 - x^2} + a^2 \arcsin \frac{x}{a} - 5.$

6.286. $\sin x - x \cos x + 4.$

6.287. $x \operatorname{arctg} x - \ln \sqrt{1 + x^2}.$

6.288. $x \ln x - x + 1.$

6.289. $x \arcsin x + \sqrt{1 - x^2} - 3.$

Fonksiyonların $d^2y = f''(x) dx^2$ diferansiyellerini bulunuz:

6.303. $y = a \sin(bx + c).$

6.304. $y = 3^{-x^2}.$

6.305. $y = \frac{\sin x}{x}.$

6.306. $y = ax^2 + bx + c.$

6.307. $y = \frac{1}{x^2 - 3x + 2}.$

6.308. $y = \sqrt{1 - x^2} \arcsin x.$

6.309. $y = \ln(x + \sqrt{1 + x^2}).$

6.310. $y = \arcsin(a \sin x).$

$\frac{0}{0}$ ve $\frac{\infty}{\infty}$ Tipinde belirsizliklerin limitini bulunuz:

6.329. $\lim_{x \rightarrow 0} \frac{\ln \cos 2x}{\sin 2x}.$

6.330. $\lim_{x \rightarrow 0} \frac{x - \operatorname{arctg} x}{x^3}.$

6.331. $\lim_{x \rightarrow a} \frac{x^m - a^m}{x^n - a^n}, m \neq n, a \neq 0.$

$$6.332. \lim_{x \rightarrow 0} \frac{a^x - b^x}{c^x - d^x}, \quad a \neq b, \quad c \neq d.$$

$$6.333. \lim_{x \rightarrow 0} \frac{\ln \sin ax}{\ln \sin bx}.$$

$$6.334. \lim_{x \rightarrow 0} \frac{e^{2x} - 1}{\arcsin 3x}.$$

$$6.335. \lim_{x \rightarrow 5} \frac{\sqrt[3]{x} - \sqrt[3]{5}}{\sqrt{x} - \sqrt{5}}.$$

$$6.336. \lim_{x \rightarrow 0} \frac{\ln \cos ax}{\ln \cos bx}.$$

$$6.337. \lim_{x \rightarrow 0} \frac{e^x - e^{-x} - 2x}{x - \sin x}.$$

$$6.338. \lim_{x \rightarrow +\infty} \frac{\pi - 2 \operatorname{arctg} x}{e^{3/x} - 1}.$$

$$6.339. \lim_{x \rightarrow 0} \frac{x - \sin x}{x - \operatorname{tg} x}.$$

$$6.340. \lim_{x \rightarrow 0} \frac{e^x - e^{-x}}{\ln(1+x)}.$$

$$6.341. \lim_{x \rightarrow 0} \frac{e^{3x} - 3x - 1}{\sin^2 5x}.$$

$$6.342. \lim_{x \rightarrow \pi/4} \frac{\operatorname{ctg} x - 1}{\sin 4x}.$$

$$6.343. \lim_{x \rightarrow 1} \frac{x^3 - 4x^2 + 5x - 2}{x^3 - 5x^2 + 7x - 3}.$$

$$6.344. \lim_{x \rightarrow +\infty} \frac{\ln x}{x^m}, \quad m > 0.$$

$$6.345. \lim_{x \rightarrow +0} \frac{\ln x}{1 + 2 \ln \sin x}.$$

$$6.346. \lim_{x \rightarrow 1-0} \frac{\operatorname{tg}(\pi x/2)}{\ln(1-x)}.$$

$$6.347. \lim_{x \rightarrow 3+0} \frac{\cos x \cdot \ln(x-3)}{\ln(e^x - e^3)}.$$

$$6.348. \lim_{x \rightarrow 1-0} \frac{\ln(1-x) + \operatorname{tg}(\pi x/2)}{\operatorname{ctg} \pi x}.$$

$0 \cdot \infty$ ve $\infty - \infty$ Tipinde belirsizliklerin limitini bulunuz:

$$6.349. \lim_{x \rightarrow \infty} x(e^{1/x} - 1).$$

$$6.350. \lim_{x \rightarrow 0} \left(\operatorname{ctg} x - \frac{1}{x} \right).$$

$$6.351. \lim_{x \rightarrow \infty} x^n e^{-x}.$$

$$6.352. \lim_{x \rightarrow \infty} x \ln^3 x.$$

$$6.353. \lim_{x \rightarrow \pi} (\pi - x) \operatorname{tg} \frac{x}{2}.$$

$$6.354. \lim_{x \rightarrow 0} (e^x + e^{-x} - 2) \operatorname{ctg} x.$$

$$6.355. \lim_{x \rightarrow 0} x^2 e^{1/x^2}.$$

$$6.356. \lim_{x \rightarrow 1} (x-1) \operatorname{ctg} \pi(x-1).$$

$$6.357. \lim_{x \rightarrow \infty} x \sin \frac{a}{x}.$$

$$6.358. \lim_{x \rightarrow 1+0} \ln x \cdot \ln(x-1).$$

$$6.359. \lim_{x \rightarrow 1+0} \left(\frac{1}{\ln x} - \frac{x}{\ln x} \right).$$

$$6.360. \lim_{x \rightarrow 0} \left(\frac{1}{\operatorname{arctg} x} - \frac{1}{x} \right).$$

$$6.361. \lim_{x \rightarrow 1} \left(\frac{1}{2(1 - \sqrt{x})} - \frac{1}{3(1 - \sqrt[3]{x})} \right).$$

$$6.362. \lim_{x \rightarrow \pi/2} \left(\frac{x}{\operatorname{ctg} x} - \frac{\pi}{2 \cos x} \right). \quad 6.363. \lim_{x \rightarrow 0} \left(\frac{1}{x^2} - \operatorname{ctg}^2 x \right).$$

$0^0, \infty^0, 1^\infty$ Tipinde belirsizliklerin limitini bulunuz:

$$6.364. \lim_{x \rightarrow +0} x^{\sin x}.$$

$$6.365. \lim_{x \rightarrow +0} (\arcsin x)^{\operatorname{tg} x}.$$

$$6.366. \lim_{x \rightarrow \pi/2-0} (\pi - 2x)^{\cos x}. \quad 6.367. \lim_{x \rightarrow +0} \frac{1}{x^{\ln(e^x - 1)}}.$$

$$6.368. \lim_{x \rightarrow +\infty} x^{1/x}.$$

$$6.369. \lim_{x \rightarrow +\infty} (x + 2^x)^{1/x}.$$

$$6.370. \lim_{x \rightarrow +0} (\operatorname{ctg} x)^{1/\ln x}.$$

$$6.371. \lim_{x \rightarrow \pi/2-0} (\operatorname{tg} x)^{2x-\pi}.$$

$$6.372. \lim_{x \rightarrow 1} x^{1/(1-x)}.$$

$$6.373. \lim_{x \rightarrow +\infty} \left(1 + \frac{1}{x^2} \right)^x.$$

$$6.374. \lim_{x \rightarrow 0} (\cos 2x)^{3/x^2}.$$

$$6.375. \lim_{x \rightarrow 0} (e^x + x)^{1/x}.$$

$$6.376. \lim_{x \rightarrow a} \left(2 - \frac{x}{a} \right)^{\operatorname{tg} \frac{\pi x}{2a}}.$$

$$6.377. \lim_{x \rightarrow 0} \left(\frac{(1+x)^{1/x}}{e} \right)^{1/x}.$$

$$6.378. \lim_{x \rightarrow 0} \left(\frac{\sin x}{x} \right)^{1/x^2}.$$

Maclaurin formülüne göre açılımları kullanarak limitleri bulunuz:

$$a) \lim_{x \rightarrow 0} \frac{\sqrt{1+x} - \sqrt{1-x}}{x}; \quad 5) \lim_{x \rightarrow 0} \frac{1 - \cos x}{x^2 + x^3}; \quad B) \lim_{x \rightarrow 0} \frac{\operatorname{tg} x - \sin x}{x^3 + x^4}.$$

Fonksiyonun monotonluk aralıklarını, ekstremum noktalarını ve değerlerini bulunuz:

$$6.404. y = x\sqrt{1-x^2}.$$

$$6.405. y = \frac{2x^2 - 1}{x^4}. \quad 6.406. y = \frac{x}{\ln x}.$$

$$6.407. y = x - 2 \sin x. \quad 6.408. y = x - 2 \ln x.$$

$$6.409. y = \ln x - \operatorname{arctg} x. \quad 6.410. y = e^x \cos x.$$

$$6.411. y = x^x. \quad 6.412. y = \operatorname{ch}^3 x + 1.$$

Fonksiyonun gösterilen aralıkda en büyük ve en küçük değerlerini bulunuz:

6.413. $y = -3x^4 + 6x^2$; $[-2, 2]$. **6.414.** $y = x + 2\sqrt{x}$; $[0, 4]$.

6.415. $y = \frac{x-1}{x+1}$; $[0, 4]$. **6.416.** $y = \frac{1-x+x^2}{1+x-x^2}$; $[0, 1]$.

6.417. $y = \sqrt[3]{x+1} - \sqrt[3]{x-1}$; $[0, 1]$.

6.418. $y = \operatorname{arctg} \frac{1-x}{1+x}$; $[0, 1]$.

6.419. $y = \frac{x^2-1}{x^2+1}$. **6.420.** $y = xe^{-x^2/2}$.

Fonksiyon grafiğinin asimptotlarını bulunuz:

6.452. $y = \sqrt[5]{\frac{x}{x-2}}$. **6.453.** $y = \sqrt[3]{x^3 - x^2}$.

6.454. $y = \frac{\sqrt{|x^2-3|}}{x}$. **6.455.** $y = 3x + \operatorname{arctg} 5x$.

6.456. $y = \frac{\ln(x+1)}{x^2} + 2x$. **6.457.** $y = \frac{\sin x}{x}$.

6.458. $y = x \ln \left(e + \frac{1}{x} \right)$. **6.459.** $y = x \operatorname{arcsec} x$.

Fonksiyon grafiğinin bükümlük aralıklarını ve büküm noktalarını bulunuz:

6.440. $y = x^7 + 7x + 1$. **6.441.** $y = x^4 + 6x^2$.

6.442. $y = \sqrt[3]{(x-2)^5} + 3$. **6.443.** $y = \sqrt[3]{x+1} - \sqrt[3]{x-1}$.

6.444. $y = \sqrt[3]{(x+1)^2} + \sqrt[3]{(x-1)^2}$. **6.445.** $y = xe^{2x} + 1$.

6.446. $y = x \ln |x|$. **6.447.** $y = x^3 \ln x + 1$.

Fonksiyonu türev yardımıyla inceleyiniz, grafiğini çiziniz:

6.461. $y = \frac{(x^2-5)^3}{125}$. **6.464.** $y = \frac{x^3}{2(x-1)^2}$.

6.462. $y = \frac{1}{4}x^2(x^2-3)^2$. **6.465.** $y = \frac{x^4}{x^3-1}$

6.463. $y = \frac{1}{6}x^3(x^2-5)$.

$$6.466. y = \frac{x^3 - 3x}{x^2 - 1}.$$

$$6.467. y = \frac{x^4}{x^3 + 1}.$$

$$6.468. y = \frac{x}{x^3 + 2}.$$

$$6.469. y = \frac{x^3}{x^4 - 1}.$$

$$6.470. y = \frac{x^2}{x^3 - 1}.$$

$$6.471. y = \frac{x}{x^2 - 4}.$$

$$6.472. y = \frac{x^3}{x^2 - 3}.$$

$$6.473. y = \frac{x}{2 - x^3}.$$

$$6.474. y = \frac{x^2 - 1}{x^2 + 1}.$$

$$6.475. y = \frac{x^3}{x^3 + 1}.$$

$$6.476. y = \sqrt[3]{x+1} - \sqrt[3]{x-1}.$$

$$6.477. y = \sqrt[3]{x^2 - 2x}.$$

$$6.478. y = \sqrt[3]{(x+1)^2} + \sqrt[3]{(x-1)^2}.$$

$$6.479. y = \frac{1}{\sqrt[3]{x+1}} + \frac{1}{\sqrt[3]{x-1}}. \quad 6.480. y = \sqrt[3]{1-x^3}.$$

$$6.481. y = \sqrt[3]{x+1} + \sqrt[3]{x-1}.$$

$$6.482. y = \sqrt[3]{x^3+1} + \sqrt[3]{x^3-1}.$$

$$6.483. y = \frac{x^3}{\sqrt{x^4+1}}.$$

$$6.484. y = \frac{x}{\sqrt{x^2+1}}.$$

$$6.485. y = \frac{x^3}{3\sqrt[3]{x^3+2}}.$$

$$6.486. y = \frac{x^2}{\sqrt[3]{x^3-4}}.$$

$$6.487. y = \frac{x^3}{\sqrt[3]{(x^3+2)^2}}.$$

$$6.488. y = \frac{x^2}{\sqrt{x^2+1}}.$$

$$6.489. y = \frac{\sqrt[3]{x^3+2}}{x}.$$

$$6.490. y = \frac{x}{\sqrt[3]{(x^3+1)^2}}.$$

$$6.491. y = \frac{\sqrt{|x^2-3|}}{x}.$$

$$6.492. y = \frac{x^2}{\sqrt{|x^2-1|}}.$$

$$6.493. y = \sqrt[3]{|x^2-1|}.$$

$$6.494. y = \sqrt{|x^2-2|^3}.$$