



TILAME

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Mavzu: Darjali funksiya va uning xossalari, grafigi.
 $y = x^n, n \in Z; y = x^p, p \in Q.$

Darajali funksiya. α haqiqiy son va ixtiyoriy x

musbat son uchun x^α soni har vaqt aniqlangan bo‘ladi. $x < 0$ va

$\alpha = \frac{m}{n}$ bo‘lganda $y < x^\alpha$ funksiya aniqlanmagan. Biz $x > 0$ hol bilan shug‘ullanamiz. Har qanday α haqiqiy son uchun $(0; +\infty)$

musbat sonlar to‘plamida aniqlangan $y = x^\alpha$ funksiya mavjud.

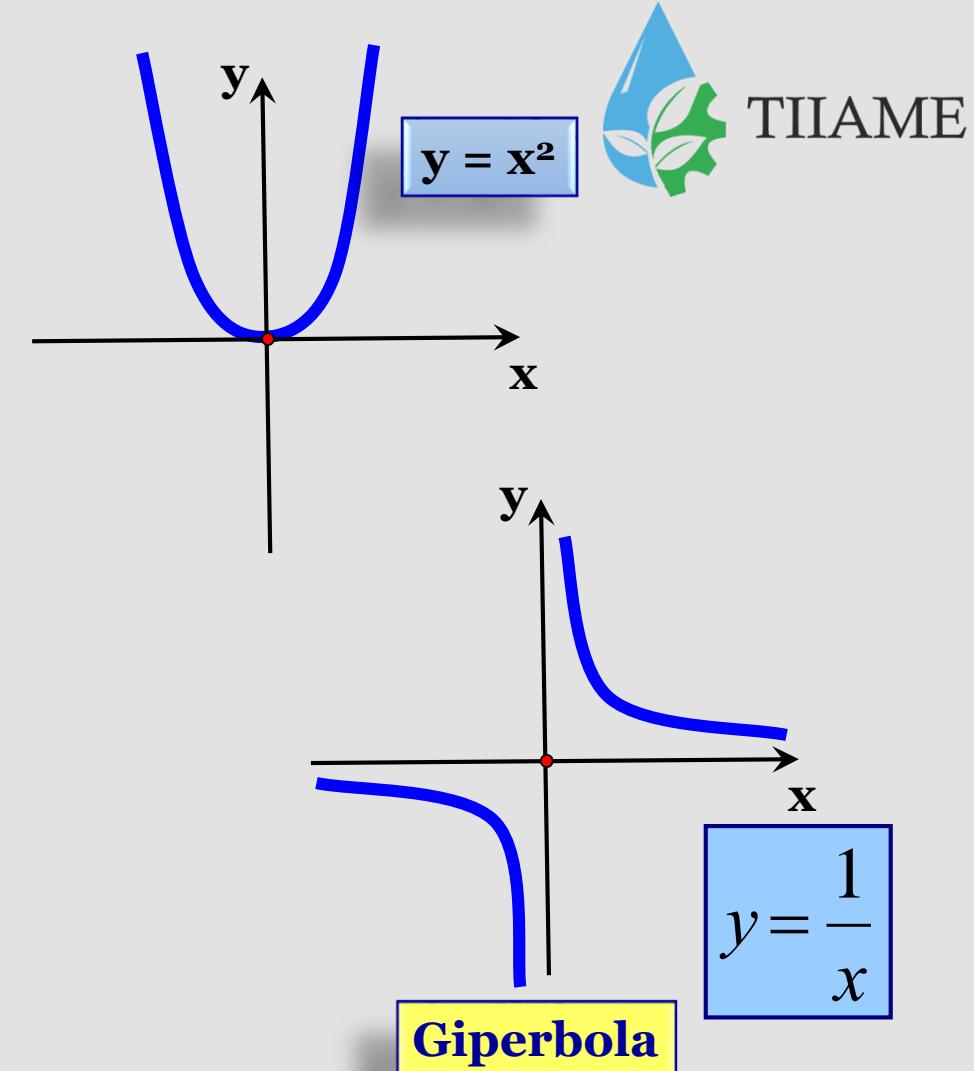
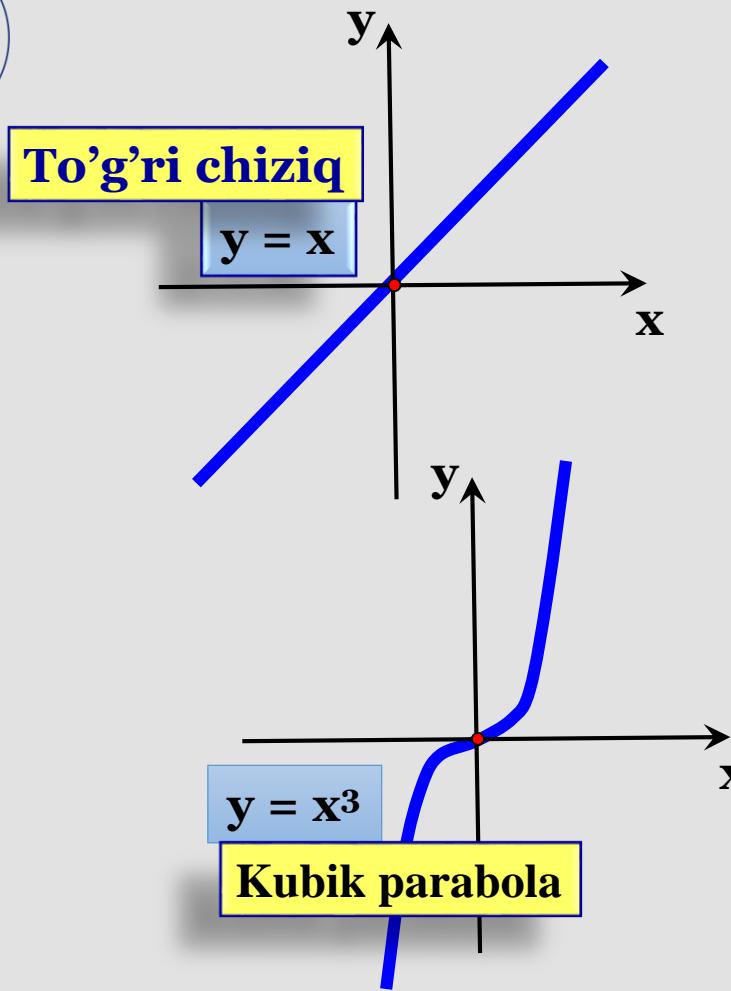
Unga α ko‘rsatkichli ***darajali funksiya*** deyiladi, bunda x – darajaning asosi. Darajali funksiya $x = 1$ da $y = 1$ dan iborat ***doimiy funksiyaga*** aylanadi.



TIIAME

Darajali funksiyaning asosiy hossalari:

1. Darajali funksiya barcha $x > 0$ qiymatlarda aniqlangan.
2. Darajali funksiya $(0; +\infty)$ da musbat qiymatlar qabul qiladi.
3. $\alpha > 0$ da darajali funksiya $(0; 1)$ oraliqda monoton kamayadi,
 $[1; +\infty)$ da monoton o‘sadi.



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Daraja ko'rsatkichi $p = 2n$ – natural juft son
 $y = x^2, \quad y = x^4, \quad y = x^6, \quad y = x^8, \dots$

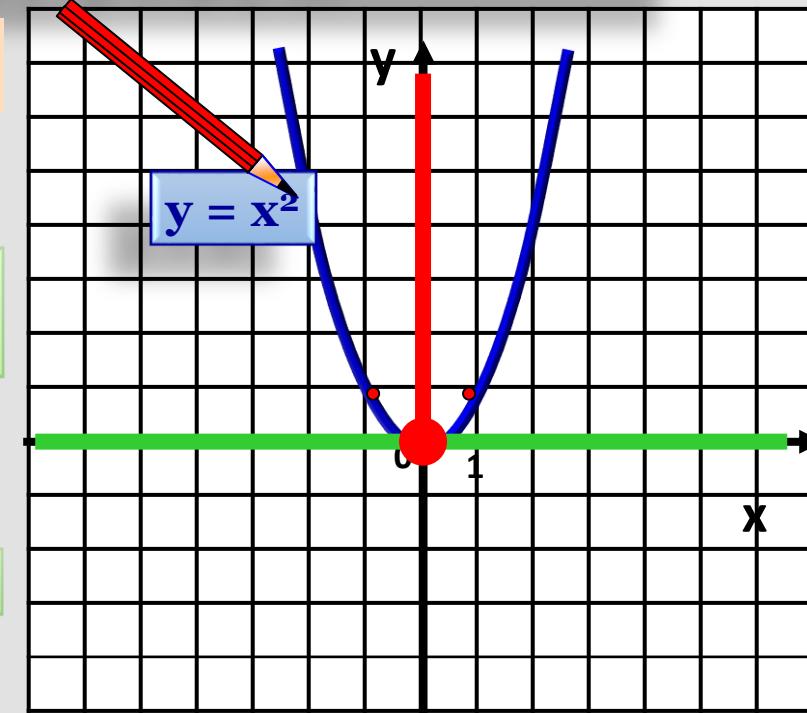
$$D(y) : x \in R$$

$$E(y) : y \geq 0$$

$y=x^{2n}$ funksiya juft:
 $(-x)^{2n} = x^{2n}$

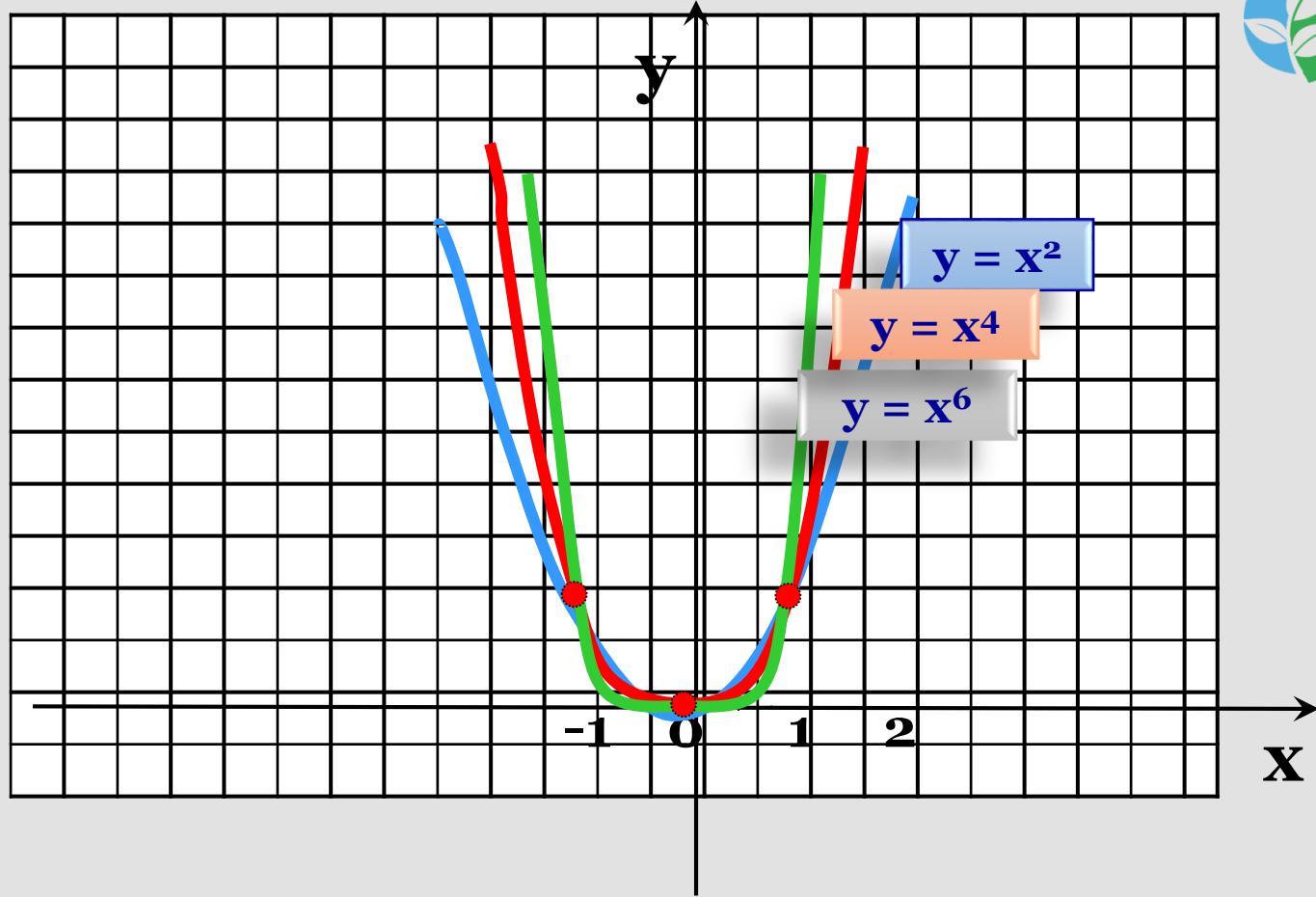
$(-\infty; 0]$ da kamayadi

$[0; +\infty)$ da o'sadi

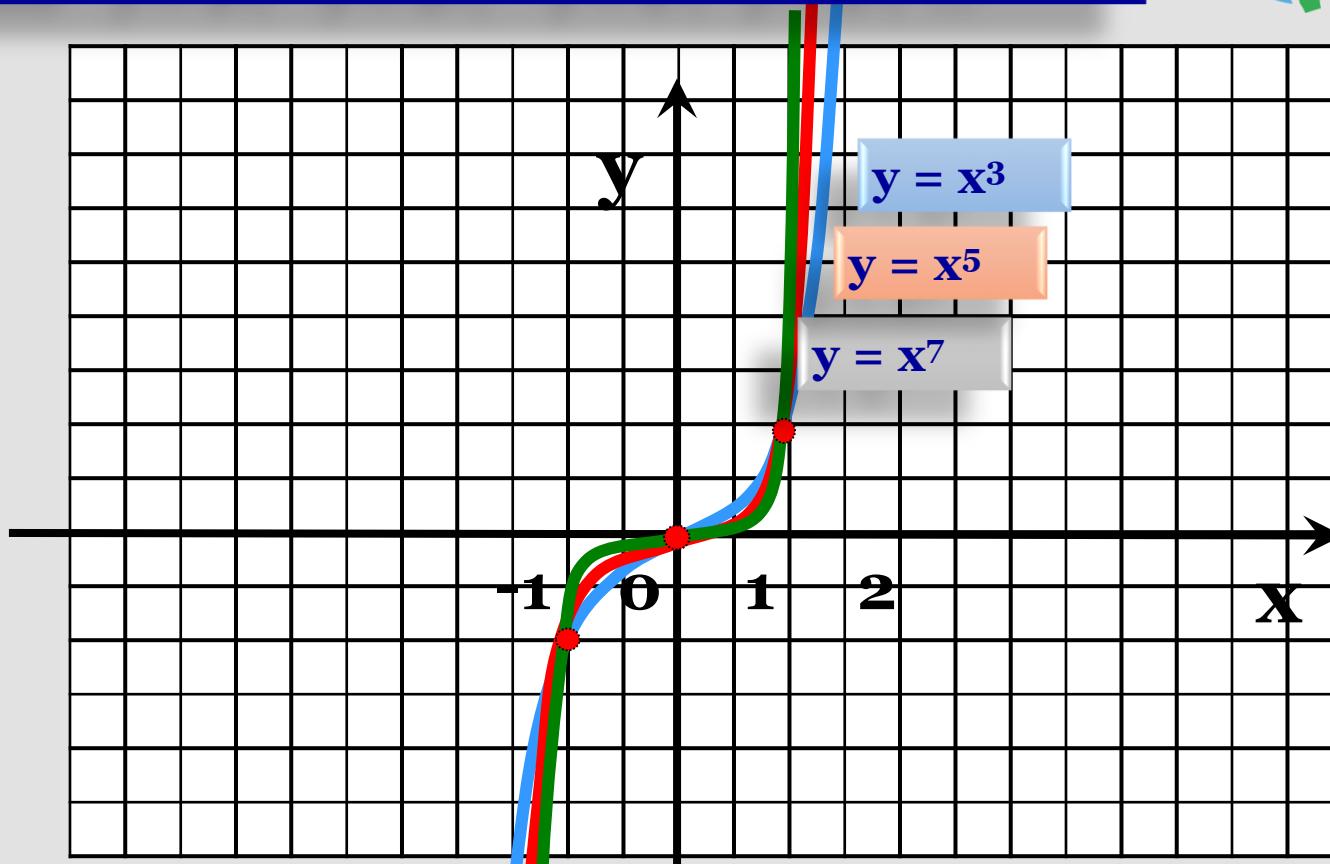




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Daraja ko'rsatkichi $p = 2n-1$ – toq natural son $y = x^3, y = x^5, y = x^7, y = x^9, \dots$



Daraja ko'rsatkichi $p = -2n$ – n natural son

$$y = x^{-2}, \quad y = x^{-4}, \quad y = x^{-6}, \quad y = x^{-8}, \dots$$

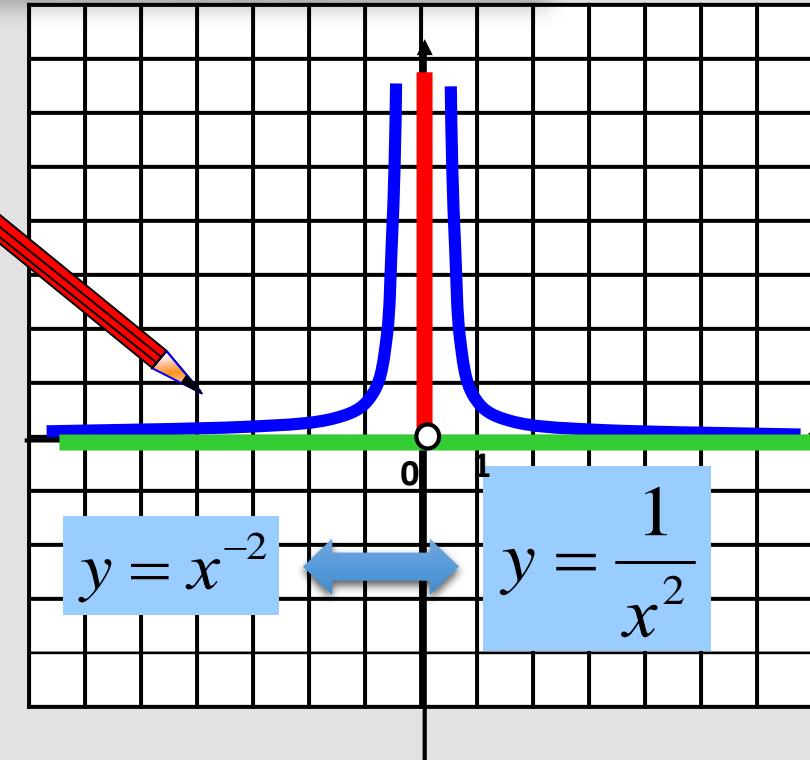
$$D(y) : x \neq 0$$

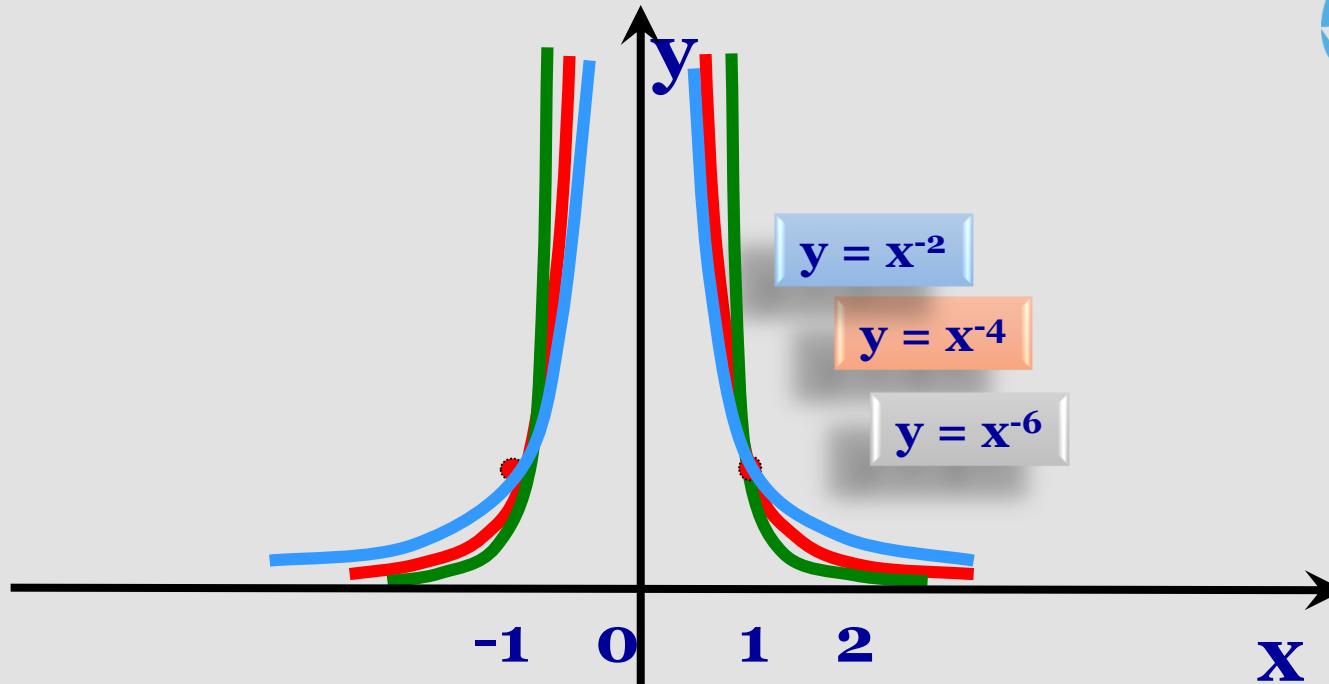
$$E(y) : y > 0$$

$y = x^{-2n}$ juft funksiya,
 $(-x)^{-2n} = x^{-2n}$

$(-\infty; 0)$ da o'sadi

$(0; +\infty)$ da kamayadi





Daraja ko'rsatkichi $p = -(2n-1)$ – n natural son

$y = x^{-3}, \quad y = x^{-5}, \quad y = x^{-7}, \quad y = x^{-9}, \dots$

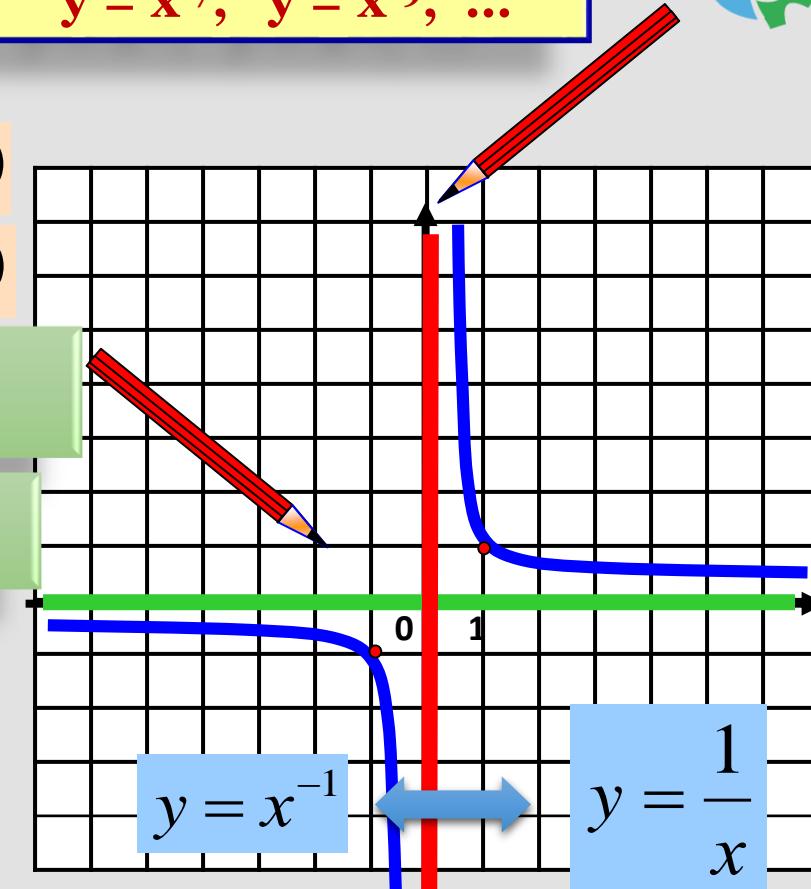
$$D(y) : x \neq 0$$

$$E(y) : y \neq 0$$

$y = x^{-(2n-1)}$ toq funksiya,
 $(-x)^{-(2n-1)} = -x^{-(2n-1)}$

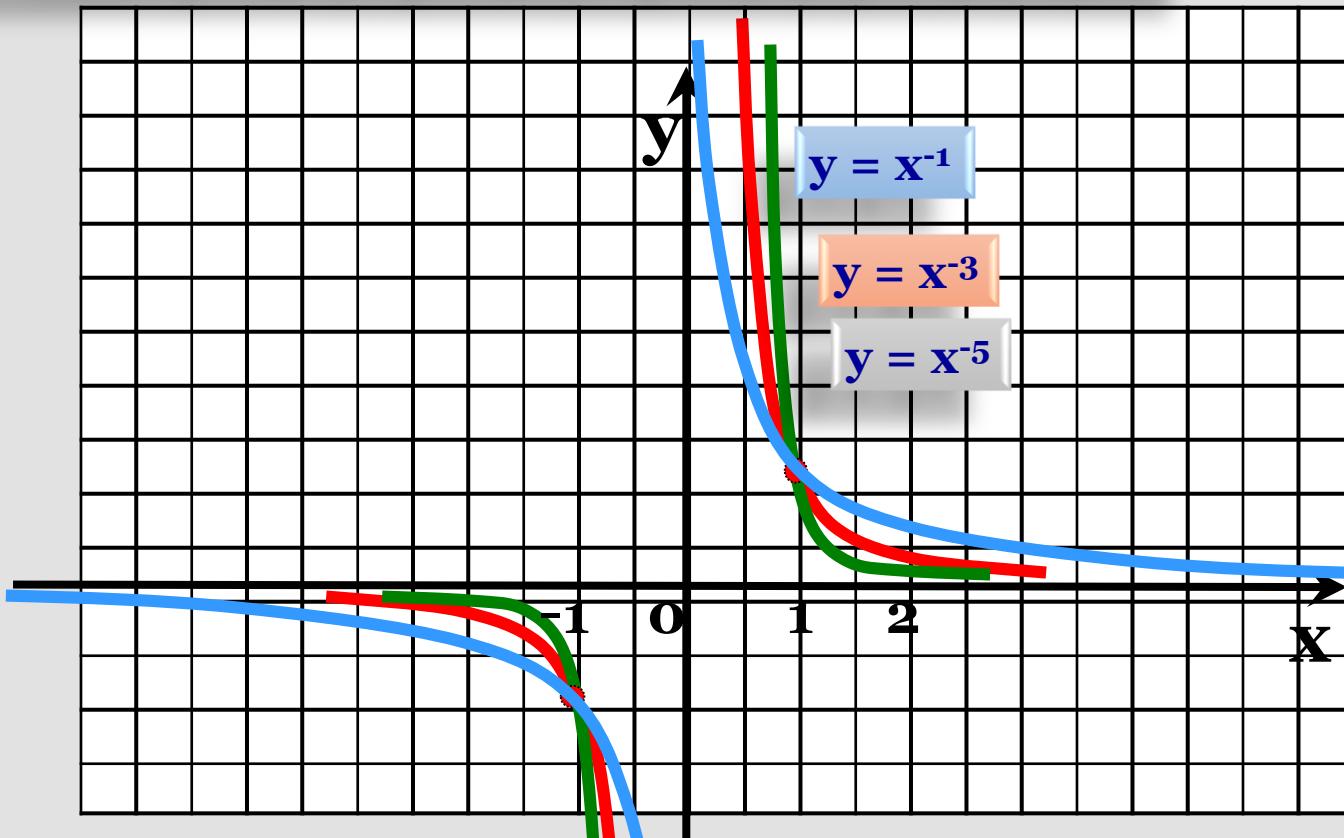
$(-\infty; 0)$ da kamayadi

$(0; +\infty)$ da kamayadi



Daraja ko'rsatkichi $p = -(2n-1)$ – n natural son

$y = x^{-3}$, $y = x^{-5}$, $y = x^{-7}$, $y = x^{-9}$, ...



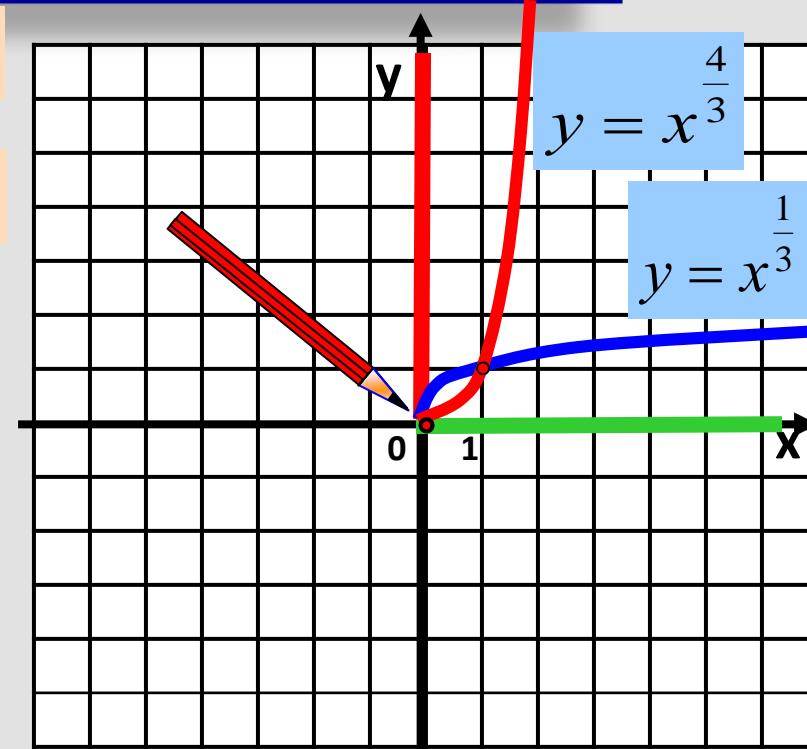
Darajali funksiya:

Daraja ko'rsatkichi $p - \in Q$ $y = x^{1,3}$, $y = x^{0,7}$, $y = x^{2,2}$,
 $y = x^{1/3}, \dots$

$$D(y): x \geq 0$$

$$E(y): y \geq 0$$

$[0; +\infty)$ da funksiya
o'sadi



Daraja ko'rsatkichi $p \in Q$ + $y = x^{1,3}$, $y = x^{0,7}$, $y = x^{2,2}$,
 $y = x^{1/3}, \dots$

