



Ratsional Ko'rsatkichli Daraja

Ushbu taqdimot ratsional ko'rsatkichli darajaning ta'rifi, xossalari, arifmetik amallarni bajarish usullari va ilovasi haqida ma'lumot beradi.

 **by Lazizbek Baxriddinov**

Ta'rif va Misollar

Ta'rif

Ratsional ko'rsatkichli daraja - bu biror sonning ratsional ko'rsatkichga ko'tarilishi. Bu ko'rsatkich butun son yoki kasr bo'lishi mumkin.

Misollar

Masalan, $2\frac{1}{2}$, $5\frac{3}{4}$, $10\frac{2}{3}$ kabi ifodalar ratsional ko'rsatkichli darajalardir.

Xossalar

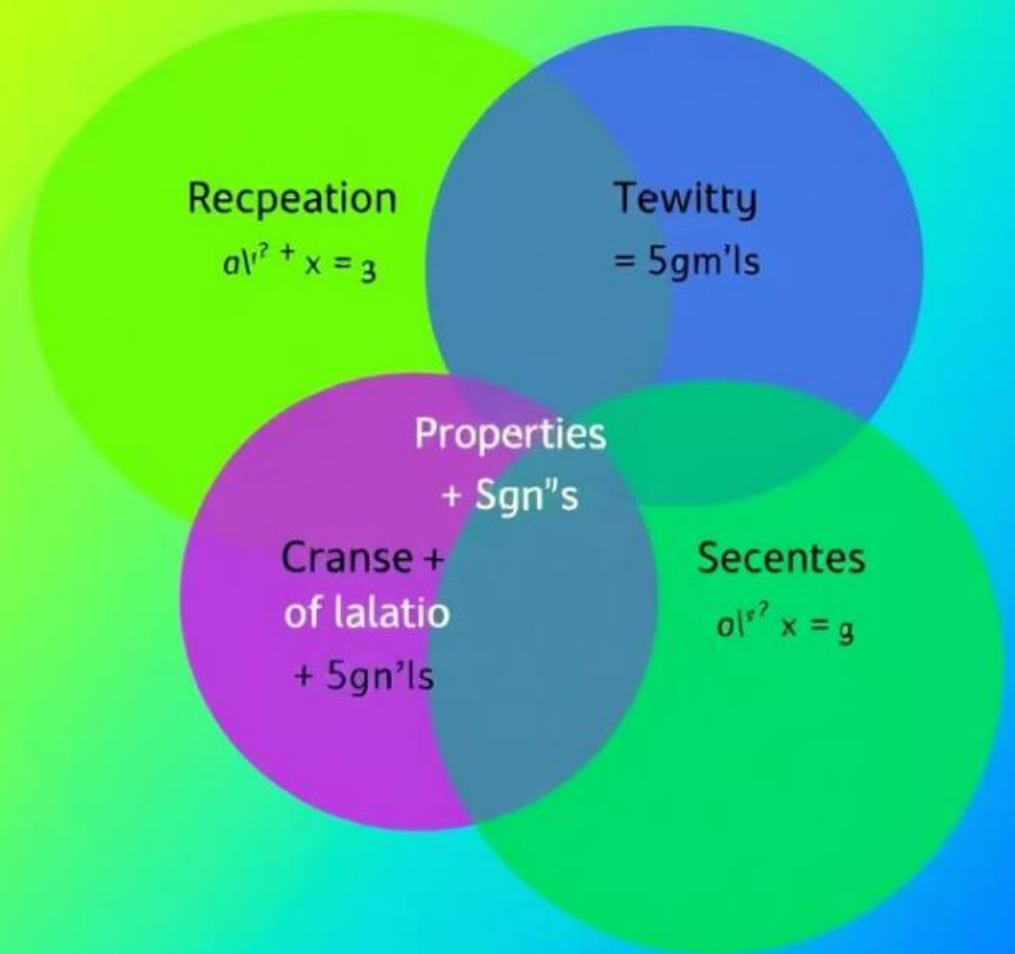
1 Ko'paytirish
 $a^m \cdot a^n = a^{m+n}$

3 Daraja ko'tarish
 $(a^m)^n = a^{m \cdot n}$

2 Bo'lish
 $a^m / a^n = a^{m-n}$

4 Yig'indi va ayirish
 $a^m + a^n$ va $a^m - a^n$ ni
soddalashtirish mumkin
emas

Ratical Racical Exponents



Arifmetik Amal

Qo'shish va Ayirish

Ratsional ko'rsatkichli darajalarni qo'shish yoki ayirish uchun ularning asosi va ko'rsatkichlari bir xil bo'lishi kerak.

Ko'paytirish va Bo'lish

Ko'paytirishda asosi bir xil bo'lsa, ko'rsatkichlar qo'shiladi. Bo'lishda esa asosi bir xil bo'lsa, ko'rsatkichlar ayiriladi.

Soddalashtirish



Qayta Yozuv

1

Ildizga o'tkazish

$$a^{m/n} = \sqrt[n]{a^m}$$

2

Ko'rsatkichga o'tkazish

$$\sqrt[n]{a^m} = a^{m/n}$$

3

Manfiy ko'rsatkich

$$a^{-m/n} = 1 / a^{m/n}$$

Ratical Exponennts

$$1. = = 2 + 12.9 = =$$

$$2. x = \frac{2 + 5.6x}{3.2 + 15}$$

$$3. = = F + 2.9$$

$$4. x = 2 + 13$$

$$4. x = \frac{-19 + 2 + 1}{3 + 5 + 19}$$

$$3. = x = \frac{5}{3} + 5 + 8$$

$$7. x = 3.2 + 9 + 2$$

$$x = = 3 + 5$$

$$5. = = \frac{-5.3 + 19}{3.2 + 12} x = 2$$

$$7. = = -4 + 2) x = =$$

Not toep + ratical exponenntsly

$$5x \rightarrow (x^p)$$

$$) = \frac{2x}{3z} = \begin{cases} \alpha x + 1 \text{ firsonly} \\ \text{thoolf vuots} \end{cases}$$

$$(< + + - F + b)$$

pepole is a reffirativee -

$$SXP = \underline{13(x + 43 - 9)} \begin{cases} 160 \\ \text{ineded} \\ \text{prealey} \end{cases}$$

Nce suporite of the fthe denal stor
tras nat + it's fabality Coling.

Tiege if g or punt a st in dem!

Wond is pessier is the exceinacly
Ig. ↗ of prinily crenly

$$u' = \frac{11}{10} = \frac{10}{35}$$

< Lofly pount.

Misol

1

Misol

23/2 ni soddallashtiring.

3

Hisoblash

$$\sqrt{23} = \sqrt{8} = 2\sqrt{2}$$

2

Ildizga o'tkazish

$$23/2 = \sqrt{23}$$



Ilova



Ilmiy hisoblashlar

Ratsional ko'rsatkichli darajalar ilmiy hisoblashlarda keng qo'llaniladi.



Funksiya grafigi

Funksiyalarning grafigini chizishda ham ratsional ko'rsatkichli darajalar muhim rol o'ynaydi.



Dasturlash

Dasturlashda ratsional ko'rsatkichli darajalarni ishlatib, muammolarni hal qilish mumkin.



Masalalar

Masala 1

$2\frac{1}{3} * 2\frac{2}{3}$ ni hisoblang.

Masala 2

$8 - 2\frac{2}{3}$ ni soddalashtiring.

Masala 3

$\sqrt{x5}$ ni ko'rsatkich shaklida yozing.

Xulosa

Ratsional ko'rsatkichli darajalar matematikada muhim rol o'ynaydi. Ular algebraik ifodalarni soddalashtirish, ilmiy hisoblashlarni bajarish, va muammolarni hal qilishda ishlatiladi.

