RASYONEL SAYILAR

Rasyonel Sayılar:

* Basit kesir: $\dfrac{a}{b} \Leftrightarrow a < b; b \neq 0$

* Bileşik kesir: $\dfrac{a}{b} \Leftrightarrow a \geq b; b \neq 0$

* Tam sayılı kesir: $a\dfrac{b}{c} = a + \dfrac{b}{c} = \dfrac{a*c+b}{c} \Leftrightarrow c \neq 0$

Örnek: $-a\dfrac{b}{c} = -a - \dfrac{b}{c} = \dfrac{-a*c-b}{c}$

$\dfrac{a}{b} = c\dfrac{d}{b} = c + \dfrac{d}{b}$

Örnek:

* $\dfrac{a}{b} \pm \dfrac{c}{b} = \dfrac{a \pm c}{b}$

* $\dfrac{a}{b} * \dfrac{c}{d} = \dfrac{a*c}{b*d}$

* $\dfrac{a}{b} : \dfrac{c}{d} = \dfrac{a}{b} * \dfrac{d}{c} = \dfrac{a*d}{b*c}$

* $a\dfrac{b}{c} \neq a*\dfrac{b}{c} \Rightarrow \dfrac{a*c+b}{c} \neq \dfrac{a*b}{c}$

* $\dfrac{\dfrac{a}{b}}{\dfrac{e}{f}} * d = \dfrac{a}{b} * \dfrac{1}{c} * d * \dfrac{f}{e} = \dfrac{a*d*f}{b*c*e}$

* $0,\underbrace{x...}_{nd} = \dfrac{x...}{10^{nd}}$ Ondalık sayı (nd: Basamak sayısı)

Rasyonel Sayılarda Sıralama:

* $a,b,c \in Z^+ \Rightarrow a < b < c \Rightarrow \dfrac{1}{a} > \dfrac{1}{b} > \dfrac{1}{c}$

* $a,b,c \in Z^- \Rightarrow a < b < c \Rightarrow \dfrac{1}{a} < \dfrac{1}{b} < \dfrac{1}{c}$

* $a,b,c,d \in Z^+ \Rightarrow a < b < c < d \Rightarrow \dfrac{b}{a} < \dfrac{c}{a} < \dfrac{d}{a}$

* $a,b,c,d \in Z^+ \Rightarrow a < b < c < d \Rightarrow \dfrac{a}{d} < \dfrac{a}{c} < \dfrac{a}{b}$

* $a \in Z^+ \Rightarrow b,c,d \in Z^- \Rightarrow b < c < d \Rightarrow \dfrac{b}{a} > \dfrac{c}{a} > \dfrac{d}{a}$

* $a \in Z^+ \Rightarrow b,c,d \in Z^- \Rightarrow b < c < d \Rightarrow \dfrac{a}{d} > \dfrac{a}{c} > \dfrac{a}{b}$

Örnek: $\dfrac{1}{2} > \dfrac{1}{3} > \dfrac{1}{5}$; $\dfrac{3}{2} < \dfrac{5}{2} < \dfrac{7}{2}$

Örnek: $\dfrac{-1}{2} < \dfrac{-1}{3} < \dfrac{-1}{5}$; $\dfrac{-3}{2} > \dfrac{-5}{2} > \dfrac{-7}{2}$

* Pay – payda arasındaki farkların eşit olduğu sıralama:

➕ $A = \dfrac{a}{a+2}$ $B = \dfrac{b}{b+2}$ $C = \dfrac{c}{c+2}$ (Payda – pay = +2)

$0 < a < b < c \Rightarrow A < B < C$ (pozitif)

$a < b < c < 0 \Rightarrow A > B > C$ (negatif)

➕ $A = \dfrac{a+2}{a}$ $B = \dfrac{b+2}{b}$ $C = \dfrac{c+2}{c}$ (Pay – payda = +2)

$0 < a < b < c \Rightarrow A > B > C$ (pozitif)

$a < b < c < 0 \Rightarrow A < B < C$ (negatif)

* $\left.\begin{array}{l} x,y,z \in R^- \\ a,b,c \in R^+ \end{array}\right\} \Rightarrow \left.\begin{array}{l} x*y = a \\ x*z = b \\ y*z = c \end{array}\right\} \Rightarrow x*y > x*z > y*z \quad \begin{array}{l} a > b > c \\ y < z; x < y \end{array}$

$0 < x < y < z$

* $a,b\overline{cd} = \dfrac{abcd - ab}{990}$ Devirli ondalıklı sayı

* $a,1\overline{9} = a,2$ Devirlide tek devreden 9 ise soldan 1 artar.

Örnek: $1,2464646... = 1,2\overline{46} = \dfrac{1246-12}{990} = \dfrac{1234}{990}$

Örnek: $a = \dfrac{101}{103}; b = \dfrac{110}{112}; c = \dfrac{440}{442} \Rightarrow a < b < c$

Örnek: $a = \dfrac{-101}{103}; b = \dfrac{-110}{112}; c = \dfrac{-440}{442} \Rightarrow a > b > c$

Örnek: $a = \dfrac{103}{101}; b = \dfrac{112}{110}; c = \dfrac{442}{440} \Rightarrow a > b > c$

Örnek: $a = \dfrac{-103}{101}; b = \dfrac{-112}{110}; c = \dfrac{-442}{440} \Rightarrow a < b < c$

* $y = \dfrac{a*x+b}{c*x+d}$ ifadede x'in y cinsinden ifadesi:

$y = \dfrac{a*x+b}{c*x+d} \Rightarrow x = \dfrac{-(d)*y+b}{c*y-(a)}$