MATEMATIKA KURSINING KASRLAR BO'LIMINI BOSHLANG'ICH SINF O'QUVCHILARI MUSTAQIL O'RGANISHLARI UCHUN ISHLAB CHIQILGAN MAXSUS QO'LLANMA

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Amaliy matematika va mexanika kafedrasi katta o'qituvchisi.

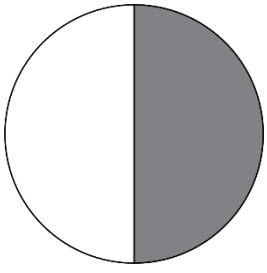
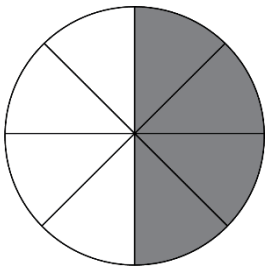
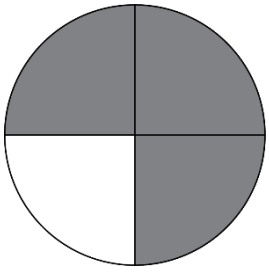
Annotatsiya: *Matematika fanini o'rganish uchun, "Kasrlar" bo'limi muhim poydevorlardan biri ekani hech kimga sir emas. Lekin hayotida birinchi bor bu bo'lim bilan yuzlashgan inson uchun "Kasrlar" uncha-muncha qiyinchilik tug'dirishi tabiiy. Ayrim vaqtlarda esa hatto ustozlar ham ushbu bobda qiyinchilikka duch keladilar. Ularning muammolari, mavzuni o'quvchiga yetkazib berishda albatta. Maqola asosan maktab o'quvchilar uchun yozilgan bo'lib, quyida keltiriladigan qo'llanma ularga taqdim qilinsa, ustozlar ko'magisiz, kasrlar bo'limini o'rganib chiqishlari mumkin bo'ladi.*

Kalit so'zlar: *Ratsional sonlar, nisbat, aralash ,qism, surat, maxraj.*

Ratsional sonlar. Oddiy kasrlar.

1-mavzu: Kasr haqida tushuncha. Kasrlarni taqqoslash.

Kasr haqida tushuncha. *Ta'rif:* $\frac{a}{b}$ (a ∈ Z, b ∈ N) ko'rinishidagi sonlar, **ratsional sonlar** deyiladi. $\frac{1}{2}, \frac{4}{2}, \frac{5}{7}, \frac{10}{1}, \frac{15}{21}$.

$\frac{1}{2}$ $\frac{4}{8}$ $\frac{3}{4}$

Tasavvur qilyalik, pitsani to'rt bo'lakka bo'ldingiz va uni uch bo'lagini istemol qildingiz. Shunda siz uning $\frac{3}{4}$ qismini istemol qilgan bo'lasiz. $\frac{a}{b}$ ko'rinishidagi sonlarni **kasrlar** deb ham ataymiz. Bu yerda **a**- surat, **b**- maxraj deyiladi.

Ta'rif: Agar kasr surati maxrajidan kichik bo'lsa (a < b), bunday kasrlar **to'g'ri kasrlar** deb ataladi. $\frac{1}{2}, \frac{5}{7}, \frac{15}{21}$ ...

Ta'rif: Agar kasr surati maxrajidan katta yoki teng bo'lsa (a > b), bunday kasrlar **noto'g'ri kasrlar** deyiladi.

$\frac{4}{2}, \frac{10}{1}, \frac{3}{3}\ldots$

Kasrlarni taqqoslash. Tasavvur qiling ikkita non bor. Siz ham do'stingiz ham o'z noningizni teng to'rtga bo'ldingiz. Siz ikki qismini, do'stingiz esa uch qismini istemol qildi. Albatta do'stingiz ko'proq istemol qilgan bo'ladi. Endi buni kasr ko'rinishida ifodlaylik.

$\frac{2}{4} < \frac{3}{4}$

1. Kasrlarni taqqoslang.

Namuna: maxrajlari bir hil kasrlarni surati katasi kata, aks holda kichik bo'ladi!

1) $\frac{2}{9}$ va $\frac{4}{9}$
2) $\frac{3}{7}$ va $\frac{6}{7}$
3) $\frac{1}{8}$ va $\frac{7}{8}$
4) $\frac{2}{5}$ va $\frac{3}{5}$
5) $\frac{11}{19}$ va $\frac{7}{19}$
6) $\frac{17}{38}$ va $\frac{21}{38}$
7) $\frac{4}{51}$ va $\frac{23}{51}$
8) $\frac{23}{100}$ va $\frac{67}{100}$
9) $\frac{221}{640}$ va $\frac{124}{640}$
10) $\frac{17}{28}$ va $\frac{13}{28}$
11) $\frac{17}{45}$ va $\frac{21}{45}$
12) $\frac{4}{5}$ va $\frac{5}{5}$

2. Qaysi qatorda faqat to'g'ri kasrlar berilgan?

1) $\frac{2}{1}; \frac{1}{2}; \frac{4}{5}; \frac{4}{4}; \frac{11}{6}$
2) $\frac{1}{2}; \frac{3}{4}; \frac{4}{5}; \frac{21}{45}; \frac{44}{100}$
3) $\frac{1}{8}; \frac{3}{4}; \frac{5}{9}; \frac{27}{88}; \frac{87}{108}$
4) $\frac{8}{2}; \frac{100}{78}; \frac{4}{5}; \frac{45}{21}; \frac{44}{100}$

3. Qaysi qatorda faqat noto'g'ri kasr berilgan?

1) $\frac{2}{1}; \frac{1}{2}; \frac{4}{5}; \frac{4}{4}; \frac{11}{6}$ 3) $\frac{1}{8}; \frac{3}{4}; \frac{5}{9}; \frac{27}{88}; \frac{87}{108}$

2) $\frac{1}{2}; \frac{3}{4}; \frac{4}{5}; \frac{21}{45}; \frac{44}{100}$ 4) $\frac{8}{2}; \frac{100}{78}; \frac{8}{5}; \frac{45}{21}; \frac{100}{100}$

2-mavzu: Maxrajlari bir xil bo'lgan kasrlarni qo'shish va ayirish.

Agar nonni to'rt bo'lakka bo'lib, uning bir bo'lagini nonushtaga, ikki bo'lagini tushlikka yegan bo'lsangiz jami nechta bo'lak yegan bo'lasiz? Albatta 3 bo'lak. $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

Tabiiyki kechki ovqat uchun bir bo'lak qolgan bo'ladi. $\frac{4}{4} - \frac{3}{4} = \frac{1}{4}$

Xulosa shuki, maxrajlari bir xil bo'lgan kasrlarni qo'shishda (ayirishda), ularning suratlari qo'shiladi (ayriladi).

1. Oddiy kasrlarni qo`shing.

Namuna: $\frac{2}{7} + \frac{3}{7} = \frac{2+3}{7} = \frac{5}{7}$

1) $\frac{1}{7} + \frac{1}{7}$ 6) $\frac{5}{14} + \frac{3}{14}$

2) $\frac{2}{5} + \frac{3}{5}$ 7) $\frac{17}{50} + \frac{13}{50}$

3) $\frac{9}{25} + \frac{21}{25}$ 8) $\frac{8}{25} + \frac{12}{25}$

4) $\frac{1}{15} + \frac{12}{15}$ 9) $\frac{6}{21} + \frac{7}{21}$

5) $\frac{3}{11} + \frac{1}{11}$ 10) $\frac{125}{720} + \frac{25}{70}$

2. Kasrlarni ayiring.

Namuna: $\frac{18}{32} - \frac{7}{32} = \frac{18-7}{32} = \frac{11}{32}$

1) $\frac{4}{6} - \frac{1}{6}$ 5) $\frac{12}{20} - \frac{6}{20}$

2) $\frac{7}{20} - \frac{4}{20}$ 6) $\frac{39}{100} - \frac{9}{100}$

3) $\frac{21}{30} - \frac{20}{30}$ 7) $\frac{9}{32} - \frac{7}{32}$

4) $\frac{15}{60} - \frac{12}{60}$ 8) $\frac{5}{18} - \frac{1}{18}$

3. Oddiy kasrlarni hisoblang.

Namuna: $\frac{13}{15}+\frac{10}{15}-\frac{8}{15}=\frac{13+10-8}{15}=\frac{15}{15}=1$

1) $\frac{15}{17}+\frac{1}{17}-\frac{7}{17}$ 4) $\frac{9}{10}+\frac{3}{10}-\frac{2}{10}$

2) $\frac{14}{15}+\frac{7}{15}-\frac{11}{15}$ 5) $\frac{9}{20}-\frac{3}{20}+\frac{7}{20}$

5) $\frac{78}{113}-\frac{26}{113}-\frac{11}{113}$ 6) $\frac{99}{100}-\frac{19}{100}$

3-mavzu: Aralash kasrlar. Aralash kasrlarni qo'shish va ayirish.

Aralash kasr haqida tushuncha. $\frac{17}{3}$ – noto'g'ri kasrni qaraylik. Kasrning asl ma'nosi, suratni maxrajga to'g'ridan to'g'ri **bo'lish** bo'lgani uchun, 17:3 bo'linmani hisoblasak 17:3=5 va (2q) bo'ladi va u

$$\mathbf{\frac{17}{3}=5\frac{2}{3}}$$

kabi yoziladi.

Ta'rif: $a\frac{c}{b}$ ko'rinishdagi kasrlar **aralash kasrlar** deyiladi.

Bu yerda, a – butun qism, $\frac{c}{b}$ – kasr qism. Demak, noto'g'ri kasrlar aralsh kasr ko'rinishida ifodalanashi mumkin.

Xulosa: Suratni maxrajga bo'lish orqali hosil bo'lgan to'liqsiz bo'linma, aralash kasrning butun qismiga, maxraj o'zgarmagan holda hosil bo'lgan qoldiq, aralash bkasrning suratiga yoziladi. Shu tariqa noto'g'ri kasrdan aralash kasrga o'tiladi.

Aralash kasrdan noto'g'ri kasrga esa ushbu

$$\mathbf{a\frac{c}{b}=\frac{a\cdot b+c}{b}}$$

fo'rmula orqali o'tiladi.

M: $$\mathbf{7\frac{1}{2}=\frac{7\cdot 2+1}{2}=\frac{15}{2}}$$

Aralash kasrlarni qo'shish va ayirish. Maxrajlari bir xil bo'lgan aralash kasrlarni qo'shayotganda, ularning butun qismlari alohida, suratlari alohida qo'shiladi, maxraj esa o'zgarmaydi.

$$\mathbf{a\frac{c}{b}+e\frac{d}{b}=(a+e)\frac{c+d}{b}}$$

Maxrajlari bir xil bo'lgan aralash kasrlarni ayirayotganda, ularning butun qismlari alohida, suratlari alohida ayriladi, maxraj esa o'zgarmaydi.

$$a\frac{c}{b} - e\frac{d}{b} = (a-e)\frac{c-d}{b}$$

1. Aralash kasrni noto`g`ri kasrga aylantiring.

Namuna: $22\frac{1}{5} = \frac{22\cdot5+1}{5} = \frac{111}{5}$

1) $1\frac{1}{2}$ 5) $4\frac{3}{20}$ 9) $11\frac{21}{50}$

2) $2\frac{2}{3}$ 6) $6\frac{5}{24}$ 10) $18\frac{16}{21}$

3) $6\frac{1}{4}$ 7) $12\frac{9}{10}$ 11) $22\frac{1}{5}$

4) $2\frac{8}{13}$ 8) $18\frac{5}{21}$ 12) $33\frac{7}{24}$

2. Noto`g`ri kasrni aralash kasrga aylantiring.

Namuna: $\frac{94}{15}$. 94 ni 15 ga qoldiqli bo'lamiz. 94:15 = 6 va (4q). Hosil bo'lgan to'liqsiz bo'linmani, butun qismga, qoldiqni esa suratga yozamiz. Maxraj o'zgarmaydi. $6\frac{4}{15}$

1) $\frac{77}{14}$ 5) $\frac{180}{44}$ 9) $\frac{99}{97}$

2) $\frac{37}{24}$ 6) $\frac{56}{17}$ 10) $\frac{124}{25}$

3) $\frac{89}{11}$ 7) $\frac{77}{34}$ 11) $\frac{64}{12}$

4) $\frac{94}{31}$ 8) $\frac{96}{15}$

3. Yig`indini hisoblang va aralash kasrga o`tkazing.

1) $\frac{3}{7}+\frac{6}{7}$ 5) $\frac{3}{5}+\frac{4}{5}$ 9) $\frac{13}{14}+\frac{11}{14}+\frac{7}{14}$

2) $\frac{11}{12}+\frac{4}{12}$ 6) $\frac{9}{12}+\frac{14}{12}$ 10) $\frac{14}{26}+\frac{13}{26}+\frac{4}{26}$

3) $\frac{11}{13}+\frac{9}{13}$ 7) $\frac{7}{8}+\frac{5}{8}$

4) $\frac{23}{29}$ *va* $\frac{14}{29}$ 9) $\frac{13}{25}+\frac{14}{25}$

4. Amallarni bajaring.

Namuna: $3\frac{2}{7} + 4\frac{5}{7} = 7\frac{7}{7} = 7 + 1 = 8.$ $3\frac{1}{7} - 2 = (3-2) + \frac{1}{7} = 1 + \frac{1}{7} = 1\frac{1}{7}$

1) $1 + 2\frac{1}{10}$
2) $2\frac{1}{7} - 1$
3) $2\frac{1}{4} + 1\frac{1}{4}$
4) $3\frac{3}{7} + 4\frac{4}{7}$
5) $6\frac{3}{10} + 2\frac{1}{10}$
6) $5\frac{11}{20} + 4\frac{3}{20}$
7) $7 + 6\frac{3}{10}$
8) $2 + \frac{8}{15}$
9) $6\frac{2}{3} - 5\frac{2}{3}$
10) $9\frac{5}{7} - 2\frac{1}{7}$
11) $6\frac{19}{20} - 2\frac{13}{20}$
12) $5\frac{43}{45} - \frac{8}{15}$

5. Amallarni bajaring.

Namuna: $6 - \frac{1}{7} = 5 + 1 - \frac{1}{7} = 5 + \frac{7}{7} - \frac{1}{7} = 5 + \frac{6}{7} = 5\frac{6}{7}$

$3 - 1\frac{1}{3} = (3-1) - \frac{1}{3} = 2 - \frac{1}{3} = 1\frac{2}{3}$

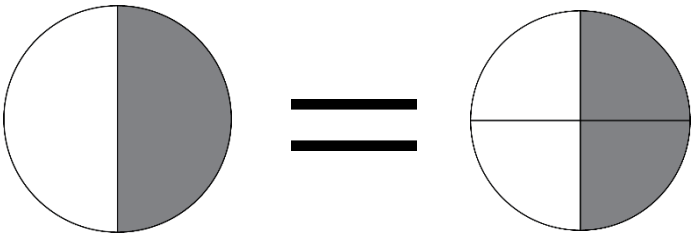
$4\frac{5}{8} - 2\frac{7}{8} = (4-2) + (\frac{5}{8} - \frac{7}{8}) = 2 + \frac{-2}{8} = 2 - \frac{2}{8} = 1\frac{6}{8}$

1) $2 - \frac{1}{3}$
2) $3 - \frac{6}{7}$
3) $5 - \frac{4}{8}$
4) $12 - \frac{11}{12}$
5) $2 - 1\frac{1}{3}$
6) $6 - 3\frac{2}{5}$
7) $23 - 8\frac{1}{7}$
8) $16 - 5\frac{17}{20}$
9) $4\frac{3}{8} - 2\frac{7}{8}$
10) $6\frac{5}{6} - 2\frac{6}{6}$
11) $8\frac{3}{14} - 7\frac{5}{14}$
12) $6\frac{1}{3} - 5\frac{2}{3}$

4-mavzu: Kasrlarni qisqartirish.

Tasavvur qiling, pitsa bor. Uni teng ikkiga bo'lib yarmini istemol qildingiz. Shunda siz uning $\frac{1}{2}$ qismini istemol qilgan bo'lasiz. Sherigingiz esa o'z pitsasini teng to'rtga bo'ldida, uning ikkita bo'lagini istemol qildi. Natijada u pitsaning $\frac{2}{4}$ qismini istemol qilgan bo'ladi.

Agar tashqi muhit tomonidan qaraydigan bo'lsak, siz ikkingiz ham teng miqdorda pitsa istemol qildingiz. Buni ushbu chizma asosida



$\frac{1}{2}$ $\frac{2}{4}$

ko'rishingiz mumkin.

Bundan kelib chiqadiki, $\frac{1}{2} = \frac{2}{4}$. Lekin qanday?

Teorema: $\frac{a}{b}$ kasrning surat va maxrajini c ($c \neq 0$) songa ko'paytirish va bo'lish mumkin.

$$\frac{a}{b} = \frac{a*c}{b*c}; \qquad \frac{a}{b} = \frac{a:c}{b:c}$$

Ta'rif: $\frac{a}{b}$ kasrning surat va maxrajini EKUB(a;b) ga bo'lib yuborishga, **kasrni qisqartirish** deyladi.

$$\frac{a}{b} = \frac{a:\text{EKUB}(a;b)}{b:\text{EKUB}(a;b)}$$

M: $\frac{27}{45}$ kasrni qisqartiring.

$27 = 3^3$; $45 = 3^2 \cdot 5$ $\rightarrow$ EKUB(27;45) $= 3^2 = 9$ $\rightarrow$ $\frac{27}{45} = \frac{27:9}{45:9} = \frac{3}{5}$. Javob: $\frac{3}{5}$

1. Kasrlarni qisqartiring. (Namuna yuqorida)

1) $\frac{2}{4}$ 5) $\frac{77}{84}$ 9) $\frac{33}{99}$

2) $\frac{7}{14}$ 6) $\frac{63}{49}$ 10) $\frac{98}{490}$

3) $\frac{14}{21}$ 7) $\frac{98}{70}$ 11) $\frac{18}{49}$

4) $\frac{45}{18}$ 8) $\frac{24}{63}$ 12) $\frac{303}{505}$

2. Kasrlarni qisqartiring va ularni aralash kasrga aylantiring.

Namuna: $\frac{72}{60}$ $\rightarrow$ EKUB(72;60) $= 12 \rightarrow$ $\frac{72:12}{60:12} = \frac{6}{5} = 1\frac{1}{5}$

1) $\frac{40}{32}$ 5) $\frac{125}{100}$ 9) $\frac{72}{60}$

2) $\frac{75}{50}$ 6) $\frac{124}{120}$ 10) $\frac{1080}{18}$

3) $\frac{90}{38}$ 7) $\frac{85}{68}$ 11) $\frac{168}{90}$

4) $\frac{100}{48}$ 8) $\frac{192}{144}$ 12) $\frac{144}{64}$

5-mavzu: Kasrlarni umumiy maxrajga keltirish.

Avvalgi mavzlarimizda maxrajlari bir xil bo'lgan kasrlarni qo'shish va ayirishga oid misollarni ko'rgan edik. Ana shunday turdagi misollarning maxrajlari bir-biriga o'xshash bo'lmasachi? Ushbu mavzuda ayni shu muammoni hal qilamiz.

$\frac{a}{c}$ va $\frac{b}{d}$ (c≠0 ; d≠ 0) kasrlarga umumiy maxraj, EKUK(c;d) orqali topiladi.

M: $\frac{1}{7}+\frac{3}{14}$ → (7=7, 14=2·7→ EKUK(7;14) = 14) → $\frac{1}{7}+\frac{3}{14}=\frac{1\cdot 2}{7\cdot 2}+\frac{3}{14}=$

$=\frac{2}{14}+\frac{3}{14}=\frac{5}{14}$

$\frac{2}{15}-\frac{1}{16}=$ | 15=3·5, 16=2^4→ EKUK(15;16) = 15·16=240 | $=\frac{2}{15}-\frac{1}{16}$

$=\frac{2\cdot 15}{15\cdot 16}-\frac{1\cdot 15}{116\cdot 15}=\frac{32}{240}-\frac{15}{240}=\frac{17}{240}$

Eslatma: Kasrli ifodalarni hisoblash orqali erishilgan natija doimo, noto'g'ri kasr ko'rinishida bo'lsa aralash kasr ko'rinishiga keltiriladi va agar mumkin bo'lsa, qisqartiriladi.

1. Kasrlarni umumiy maxrajga keltiring. (Namuna yuqorida)

1) $\frac{1}{2}$ *va* $\frac{3}{4}$ 4) $\frac{5}{8}$ *va* $\frac{7}{12}$ 7) $\frac{33}{34}$ *va* $\frac{34}{35}$

2) $\frac{2}{5}$ *va* $\frac{3}{10}$ 5) $\frac{11}{25}$ *va* $\frac{41}{75}$ 8) $\frac{18}{19}$ *va* $\frac{17}{18}$

3) $\frac{2}{5}$ *va* $\frac{9}{20}$ 6) $\frac{9}{28}$ *va* $\frac{11}{39}$ 9) $\frac{3}{35}$ *va* $\frac{5}{70}$

2. Kasrlarni avval umumiy maxrajga keltiring, so'ng taqqoslang.

Namuna: $\frac{11}{25}$ *va* $\frac{41}{75}$ → EKUK(25;75) = 75 → $\frac{11\cdot 3}{25\cdot 3}$ *va* $\frac{41}{75}$ → $\frac{33}{75}$ *va* $\frac{41}{75}$ →

→ $\frac{33}{75}<\frac{41}{75}$ → $\frac{11}{25}<\frac{41}{75}$

4) $\frac{1}{2}$ *va* $\frac{3}{4}$ 4) $\frac{5}{8}$ *va* $\frac{7}{12}$ 7) $\frac{33}{34}$ *va* $\frac{34}{35}$

5) $\frac{2}{5}$ *va* $\frac{3}{10}$ 5) $\frac{11}{25}$ *va* $\frac{41}{75}$ 8) $\frac{18}{19}$ *va* $\frac{17}{18}$

6) $\frac{2}{5}$ va $\frac{9}{20}$ 6) $\frac{9}{28}$ va $\frac{11}{39}$ 9) $\frac{3}{35}$ va $\frac{5}{70}$

3. Hisoblang. (Namuna yuqorida)

1) $\frac{3}{8}+\frac{6}{7}$ 5) $\frac{3}{15}-\frac{4}{25}$ 9) $\frac{1}{7}+\frac{2}{14}-\frac{4}{21}$

2) $\frac{11}{12}-\frac{4}{18}$ 6) $\frac{9}{36}+\frac{3}{12}$ 10) $\frac{14}{12}+\frac{13}{48}+\frac{4}{72}$

3) $\frac{11}{26}+\frac{9}{13}$ 7) $\frac{7}{8}+\frac{5}{8}$

4) $\frac{23}{33}-\frac{14}{22}$ 9) $\frac{13}{75}+\frac{2}{25}$

6-mavzu: Kasrlarni ko'paytirish va bo'lish.

Kasrlarni ko'paytirish. Bizga $\frac{a}{c}$ va $\frac{b}{d}$ (c≠0 ; d≠ 0) kasrlar berilgan bo'lsin. Kasrlarni ko'paytrirish ushbu

$$\frac{a}{c}\cdot\frac{b}{d}=\frac{a\cdot b}{c\cdot d}$$

tarzda amalga oshiriladi.

Xossa: Birinchi kasr surati bilan ikkinchchi kasr maxraji va aksincha ikkinchi kasr surati bilan birinchi kasr maxrajini qisqartirish mumkin.

Kasrlarni bo'lishdan oldin, teskari son tushunchasini kiritayllik.

Ta'rif: Ikki sonning ko'paytmasi 1 ga teng bo'lsa, ular o'zaro **teskari sonlar** deyiladi.

Demak biz, biror a (a≠0) songa teskari sonni topishimiz uchun, uni 1 ga bo'lishimiz kifoya.

$$(a)^{-1}=\frac{1}{a}$$

Kasrlarni bo'lish. Kasrlarni bo'lish ushbu

$$\frac{a}{c}:\frac{b}{d}=\frac{a}{c}\cdot\frac{d}{b}=\frac{a\cdot b}{c\cdot d}$$

tarzda amalga oshiriladi. Ya'ni, berilgan ikki kasrni bo'lish uchun, avval birinchi kasrning o'zi yoziladi va bo'lish amali ko'paytirirsh amaliga almashtirirlib, ikkinchi kasrning teskarisi yoziladi va kasrlar ko'paytirilib natija olinadi.

Eslatma: Aralash kasrlarni ko'paytirish va bo'lishda, avval ular noto'g'ri kasrga aylantiriladi va amal bajariladi.

M: $\frac{7}{3} : 1\frac{2}{3} = \frac{7}{3} : \frac{5}{3} = \frac{7}{3:3} \cdot \frac{3:3}{5} = \frac{7}{1} \cdot \frac{1}{5} = \frac{7}{5} = 1\frac{2}{5}$ Javob: $1\frac{2}{5}$

1. Karslarni ko`paytiring. (*Namuna yuqorida*)

1) $\frac{1}{2} \cdot \frac{1}{3}$
2) $\frac{2}{3} \cdot \frac{5}{6}$
3) $\frac{5}{8} \cdot \frac{2}{9}$
4) $\frac{3}{4} \cdot \frac{3}{5}$
5) $\frac{7}{10} \cdot \frac{2}{4}$
6) $\frac{5}{6} \cdot \frac{6}{7}$
7) $\frac{7}{10} \cdot \frac{9}{14}$
8) $\frac{3}{10} \cdot \frac{5}{7}$
9) $\frac{3}{4} \cdot \frac{8}{6} \cdot \frac{24}{32}$
10) $1\frac{7}{8} \cdot 1\frac{1}{15}$
11) $5\frac{3}{5} \cdot \frac{3}{7}$
12) $7\frac{3}{11} \cdot 2\frac{19}{40}$

2. Kasrlarni bo`ling.

Namuna: $36 : \frac{9}{5} = 36 \cdot \frac{5}{9} = 4 \cdot 5 = 20$

1) $\frac{1}{2} : \frac{3}{4}$
2) $\frac{7}{24} : \frac{3}{14}$
3) $\frac{9}{25} : \frac{5}{3}$
4) $\frac{27}{33} : \frac{11}{36}$
5) $\frac{16}{49} : \frac{4}{7}$
6) $36 : \frac{9}{5}$
7) $27 : \frac{9}{7}$
8) $64 : \frac{16}{25}$
9) $\frac{67}{24} : 6$
10) $10\frac{1}{3} : 2\frac{2}{3}$
11) $1\frac{2}{3} : 1\frac{1}{10}$
12) $4\frac{1}{2} : 1\frac{1}{2}$

7-mavzu: Oddiy kasrlar ustida to'rt amalga doir misollar ishlash.

Oddiy kasrlar ustida to'rt amalga doir misollar, natural va butun sonlar ustida qanday bajarilsa, huddi shunday bajariladi.

Hisoblang.

Namuna: $\left(\frac{7}{25} - \frac{1}{5} \cdot \frac{1}{2}\right) : \frac{4}{5}$;

1) $\frac{1}{5} \cdot \frac{1}{2} = \frac{1}{10}$ 2) $\frac{7 \cdot 2}{25 \cdot 2} - \frac{1 \cdot 5}{10 \cdot 5} = \frac{14-5}{50} = \frac{9}{50}$ 3) $\frac{9}{50} : \frac{4}{5} = \frac{9}{50} \cdot \frac{5}{4} = \frac{9}{100}$

1) $\frac{1}{2} : \frac{3}{4} - \frac{1}{6}$
2) $\frac{23}{50} : \frac{25}{2} + \frac{3}{4}$
3) $\frac{7}{8} : \frac{5}{6} - \frac{1}{25}$
4) $3 : \frac{9}{4} + \frac{2}{9} : \frac{3}{4}$
5) $\left(\frac{1}{2} - \frac{1}{3}\right) \cdot \frac{1}{6}$
6) $\left(\frac{7}{25} - \frac{1}{5} \cdot \frac{1}{2}\right) : \frac{4}{5}$
7) $\left(\frac{3}{4} - \frac{1}{48}\right) \cdot \frac{8}{14}$
8) $\left(\frac{25}{39} - \frac{1}{13}\right) : \frac{22}{9}$

FOYDALANILGAN ADABIYOTLAR.

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