



O'zbekiston Respublikasi Ta'limni rivojlantirish
respublika ilmiy-metodik markazi

MATEMATIKA DARSLARIDA INNOVATSION USULLARDAN FOYDALANISH

O'zbekov A.A. Surxondaryo viloyati Pedagogik mahorat
markazi matematika fani metodisti

Xorijiy tajribalarni
O'zbekistonda
qo'llash:
*Imkoniyatlar va
qiyinchiliklar*



- O'quv dasturiga moslashish;
- O'qituvchilarning tayyorgarligi;
- Resurslar bilan ta'minlash;
- Madaniy xususiyatlarni hisobga olish.

Nima uchun xorijiy tajribalar?

1. O'quvchilarning qiziqishini oshirish.
2. Kreativ fikrlashni rivojlantirish.
3. Muammolarni yechish ko'nikmalarini takomillashtirish.
4. Dunyoviy standartlarga moslashish.



Modellashtirish usuli

1. Vizual modellashtirish orqali murakkab masalalarni soddalashtirish.

2. “Bir butun” tushunchasini qo‘llash.

Misol: Sotuvchi 30 ta olma sotdi, bu barcha olmalarning $\frac{2}{5}$ qismi. Qancha olma qolgan?





$$30:5=6$$

$$12:6=2$$

6

6

6

6

6

6

6

Demak,

Ikki katak ya'ni 12 nafar qiz bolalar

Qolgan 3 katak ya'ni 18 nafari o'g'il bolalar

6

6

6

Javob: 18 nafari o'g'il bolalar

Modellashtirish usuli:

Misollar

Oddiy misollar (qo'shish va ayirishga doir)

Misol: "O'quvchilarning soni 30 nafar. Ulardan 12 nafarisi qizlar. O'g'il bolalar soni nechta?"

Murakkab misollar (ko'paytirish va bo'lishga doir)

Misol: "Narxi 15000 so'm bo'lgan 5 ta daftar sotib olindi. Hammasi bo'lib qancha to'lash kerak?"





Qo'shish va ayirishga doir

$$1) 30-12=18$$

Javob: 18 nafar o'g'il bolalar

$$2).15000+15000+15000+15000+15000=75000$$

Javob: 75000 so'm



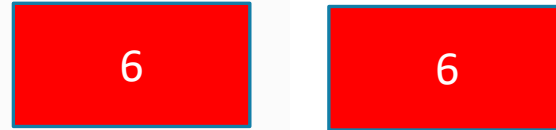
Bo'lish va ko'paytirishga doir

$$30:5=6$$

$$12:6=2$$



Demak,



Ikki katak ya'ni 12 nafar qiz bolalar

Qolgan 3 katak ya'ni 18 nafari o'g'il bolalar



Javob: 18 nafari o'g'il bolalar

Narxi 15000 so'm bo'lgan 5 ta daftar sotib olindi.
Hammasi bo'lib qancha to'lash kerak?

15000

15000

15000

15000

15000

Demak,

$$15000 \cdot 5 = 75000$$

Javob: 75000 so'm



Mavzu. Sonlar va ularning xossalari (7-sinf)

Quyidagilarni tushinish:

Manfiy sonlar

Butun sonlar

Ratsional sonlar

Haqiqiy sonlar

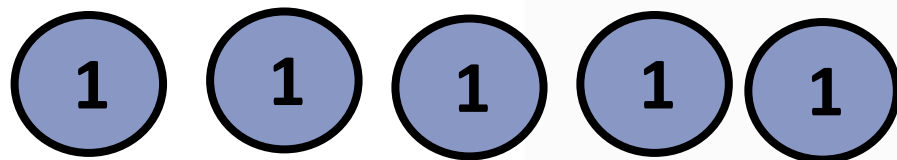
Qo'shish – “birlashtirish, jamlash” degani.

Ayirish – “olib tashlash” degani.

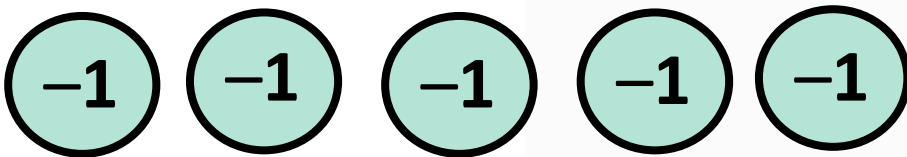
Algebraik va sonli tugmalar

Biz sonli tugmalar sonini oshiramiz, chunki manfiy sonlarni qo'shishimiz kerak .

Masalan, 5 va -5 sonlari mos ravishda quyidagicha ifodalanadi:



5



-5

Algebraik va sonli tugmalar

Tugma  sonli tugma deb ataladi.

Har bir sonli tugmaning quyida ko'rsatilganidek ikkita tomoni bor:



old



orqa

Biz tugmani aylantirib, uning old yoki orqa tomonini ko'rsatishimiz mumkin.

Asosiy tushunchalar

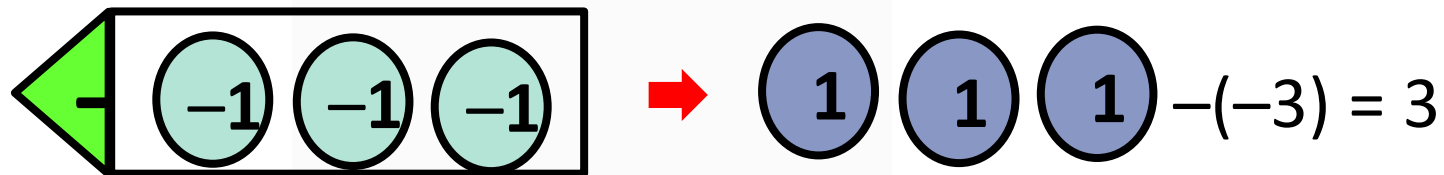
1. Sonning manfiysi

2. Nolli juftlik

1. Songa qarama-qarshi son

- 1 ning manfiysi, ya'ni unga qarama-qarshi son -1 dir. Buni $-(1) = -1$ deb yozamiz.
- -1 ning manfiysi, ya'ni unga qarama-qarshi son 1 dir. Buni $-(-1) = 1$ deb yozamiz.
- Sonning qarama-qarshisini uning ishorasini o'zgartirish orqali olamiz.
Shunday qilib, 4 ning manfiysi (qarama-qarshisi) -4 dir. Masalan: $-(4) = -4$
Aksincha, -4 ning manfiysi (qarama-qarshisi) 4 dir. Masalan: $-(-4) = 4$
- Sonning qarama-qarshisini olish uchun biz uni ifodalovchi tugmani aylantirib, uning ishorasini o'zgartiramiz.

- Misol uchun:



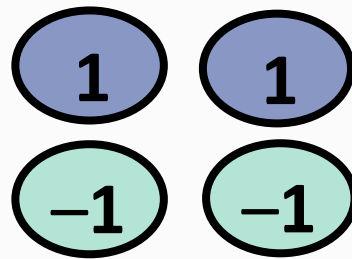
2. Nolli juftliklar

- -1 manfiy butun soni shunday sonki, $1 + (-1) = 0$.

Biz 1 va -1 **nolli juftlik** hosil qiladi deymiz.

- Nolli juftlikka yana bir misoli:

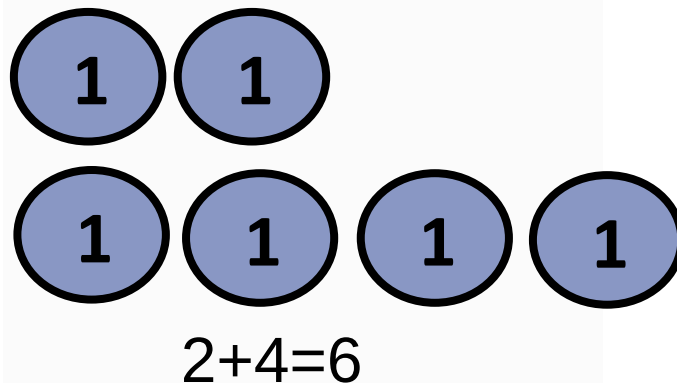
$$2 + (-2) = 0$$



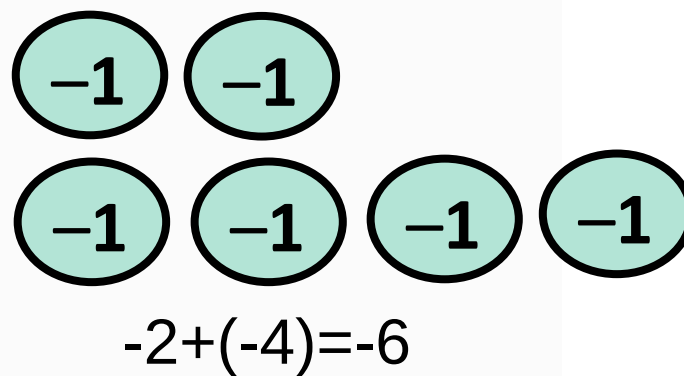
Bir xil ishorali ikkita butun sonni qo'shish

Hisoblang:

a). $2 + 4 =$

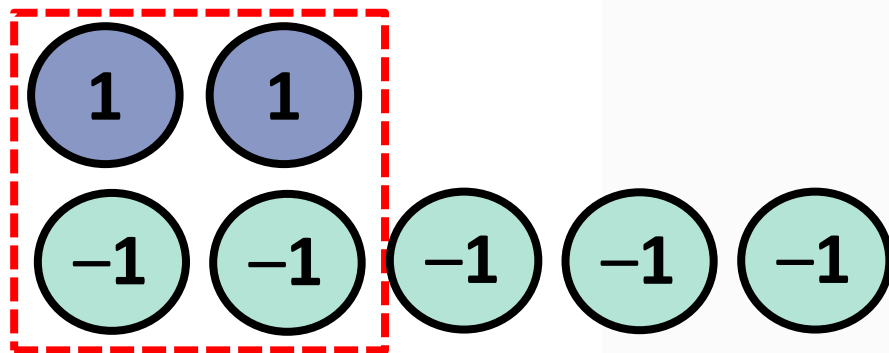


b). $(-2) + (-4) =$



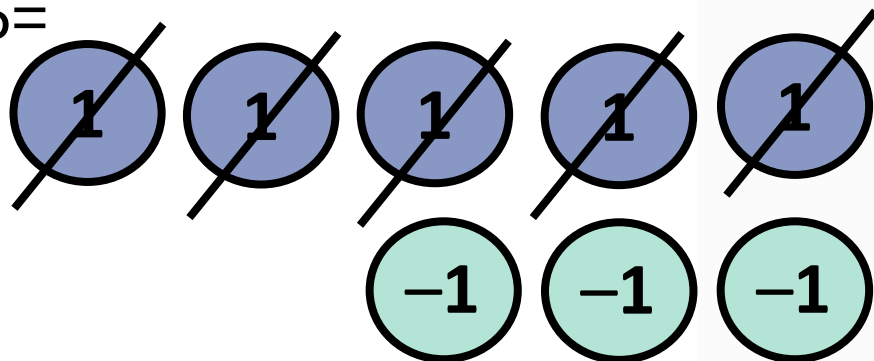
Qarama-qarshi sonlar tamoyili butun sonlarni qo'shish va ayirish jarayonini tasvirlash uchun ishlatiladi. Masalan:

1) $2 + (-5) =$



$2 + (-5) = -3$

2) $2 - 5 =$

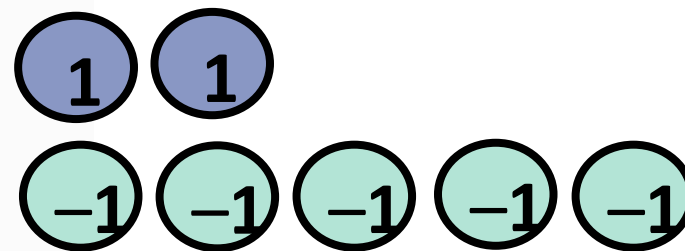


$2 - 5 = -3$

(1) va (2) dan biz $2 - 5 = 2 + (-5)$ ekanligini ko'ramiz.

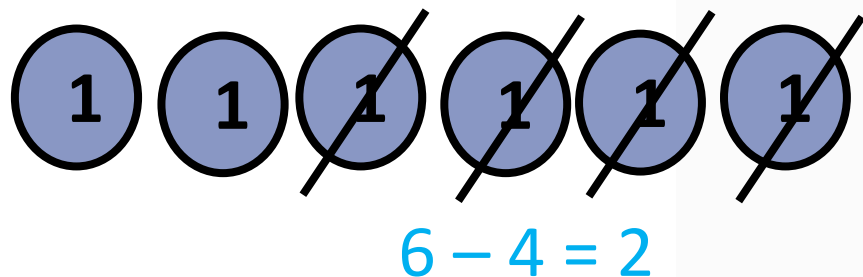
Demak, "5 ni olib tashlash" "-5 ni qo'shish" bilan bir xil.

Shunday qilib, $2 - 5$ ni quyidagicha ifodalash mumkin:

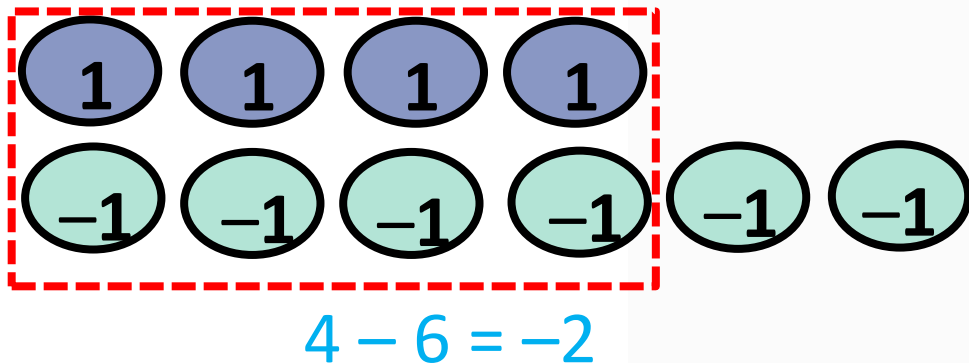


Qarama-qarshi sonlar tamoyili butun sonlarni qo'shish va ayirish jarayonini tasvirlash uchun ishlatiladi. Masalan:

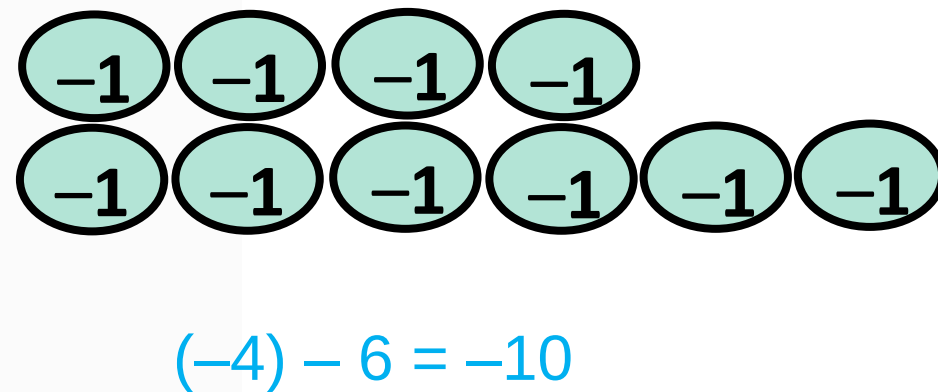
1) $6-4=$



2) $4-6=$



c) $(-4)-6=$



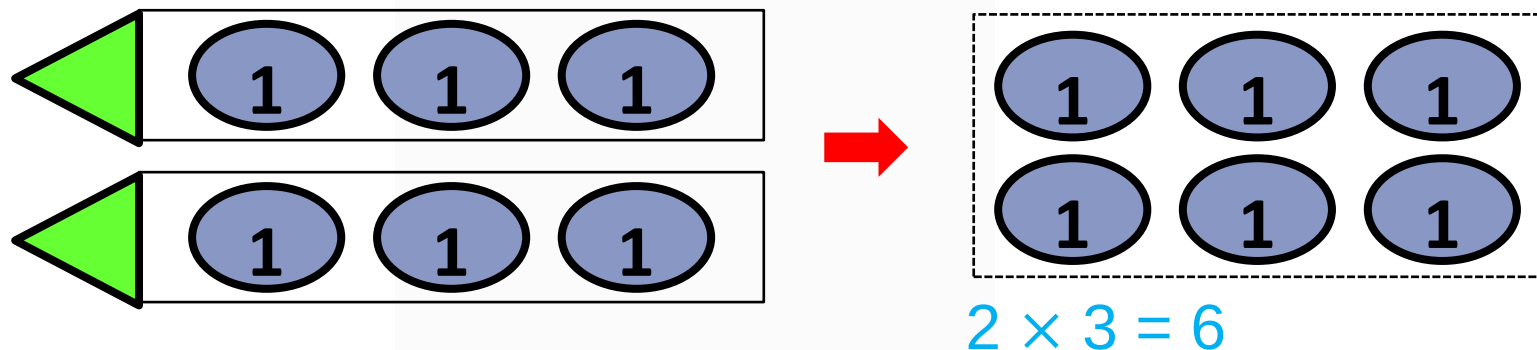
Nolli juftliklar yig'indisini umumiy yig'indidan olib tashlang.

Qarama-qarshi sonlar tamoyili butun sonlarni qo'shish va ayirish jarayonini tasvirlash uchun ishlatiladi. Masalan:

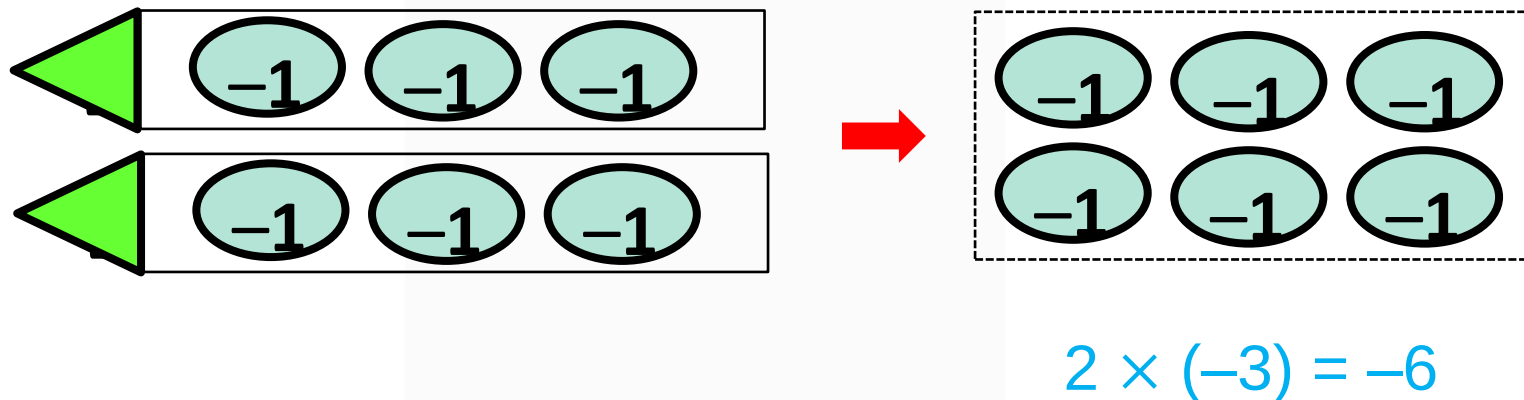
Butun sonlarni ko'paytirish

Hisoblang:

(a) 2×3



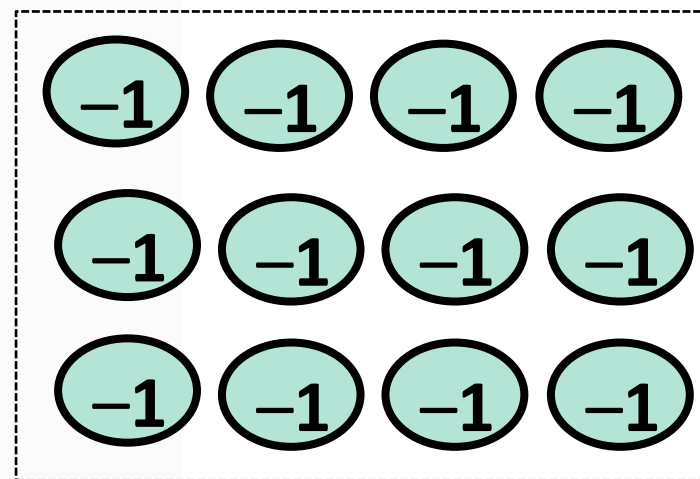
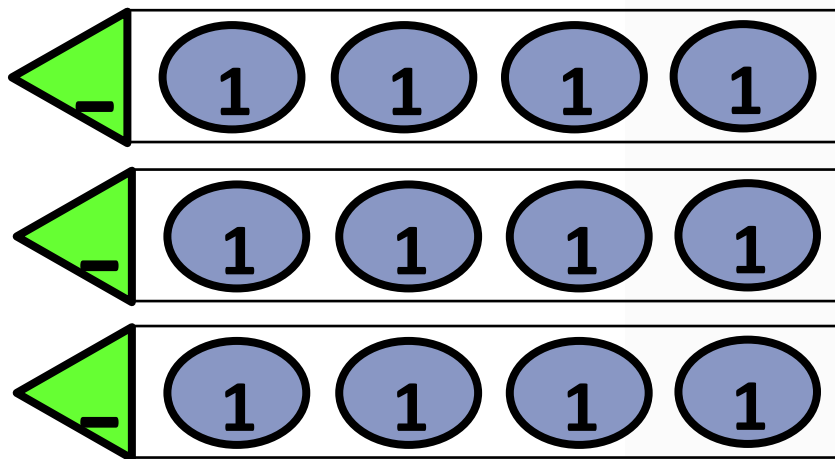
b) $2 \times (-3)$



Butun sonlarni ko'paytirish

Hisoblang:

c) $(-4) \times 3 =$



$(-4) \times 3 = -12$

Xulosa. Kelajakka qadam

- Xorijiy tajribalar - matematikani qiziqarli va samarali o'qitishning yangi usullari;
- O'zbekiston ta'lim tizimida innovatsiyalarni qo'llab-quvvatlash;
- O'quvchilarning kelajakdagi muvaffaqiyatlari uchun zamin yaratish.

**E'TIBORINGIZ UCHUN
RAXMAT!**