

1.1.2 Signed Arithmetic

Name: _____ Class: _____ Date: _____

KEY WORDS reciprocal

<!-- Session 2 native-skill companion -->

Objective

Practise signed arithmetic within the labelled native lessons. Public original tasks; locally authored answer guidance.

1 Key knowledge and worked examples

■ Signed numbers, place value and operation order · Foundation

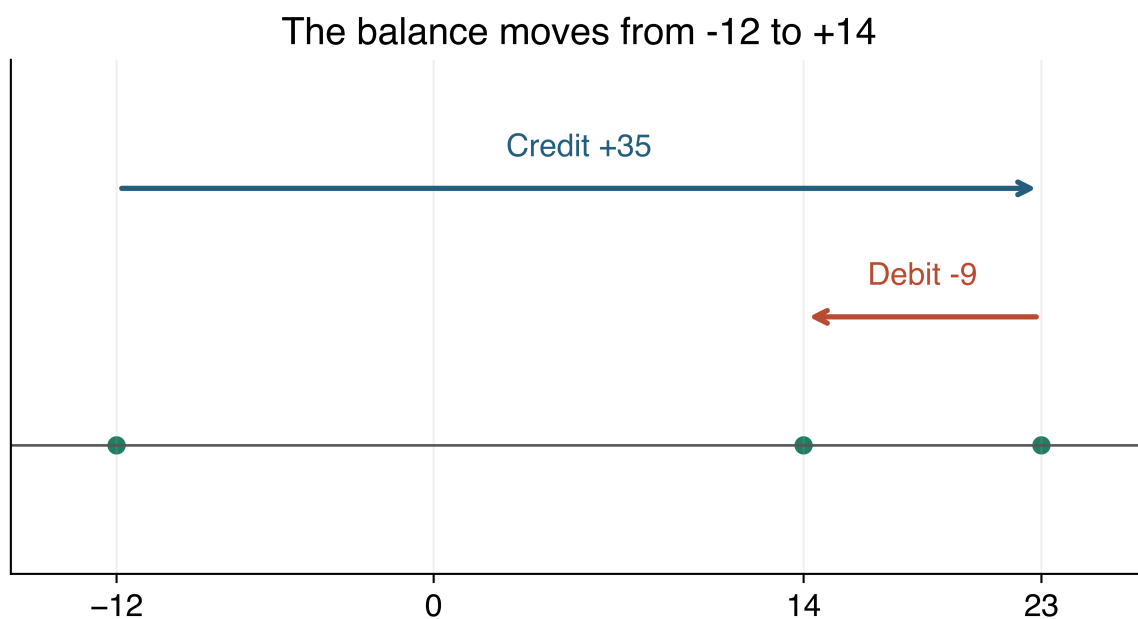
Larger numbers lie farther right on the number line. Adding a negative moves left; subtracting a negative moves right. Multiply or divide signs first, then magnitudes. Evaluate brackets, powers and roots before multiplication/division, then addition/subtraction, working left to right within equal priority.

$$-12 + 35 - 9 = 14, \quad 18 \div 3 \times 2 = 12$$

The balance is $-12+35-9=14$ yuan. Also $-4-(-7)=3$ and $(-6)\times(-3)=18$. The reciprocal of -4 is $-1/4$, since their product is 1. For $18\div3\times2$, work left to right to obtain 12. In 3.047, the 4 means four hundredths and the 7 means seven thousandths. For decimal multiplication, first calculate 24×35 : $24\times30+24\times5=720+120=840$. The original 2.4×0.35 has three decimal places in total, giving 0.840. For $5.04\div0.12$ multiply both numbers by 100 to get $504\div12$; $12\times40=480$ leaves 24, so the answer is 42. To order negative fractions, $-3/4=-0.75$ and $-4/5=-0.8$, hence $-4/5<-3/4$. The symbols $\leq$ and $\geq$ include equality; $\neq$ means unequal.

Subtraction is not commutative: 3-8 and 8-3 differ. A negative sign outside a square is not inside its base: $-3^2=-9$, but $(-3)^2=9$. Zero has no reciprocal.

Use a signed starting balance, a positive credit and a negative debit. A shop buying for 48 yuan and selling for 60 makes 12 yuan profit; reversing the prices gives a 12-yuan loss. Estimate the sign before calculating.



Original native-lesson illustration; labels belong to its worked example.

2 Practice

2.1 (Foundation) Find $-12+35-9$.

2.2 (Foundation) Find $-4-(-7)$.

2.3 (Foundation) Evaluate $18\div 3\times 2$.

3 Exam-style questions

3.1 Decide whether this claim is true. Justify with a concrete calculation or counterexample: Multiplication must always be performed before division, even when division is farther left.

Solutions

2.1 $-12+35=23$, then $23-9=14$.

2.2 Subtracting -7 adds 7 : $-4+7=3$.

2.3 Equal priority: $18\div 3=6$, then $6\times 2=12$.

3.1 False. Equal-priority multiplication and division proceed left to right: $18\div 3\times 2=6\times 2=12$. Multiplying 3×2 first incorrectly gives 3 .

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.