

CLASS 7

MATHS

NCERT SOLUTIONS

NCERT Solutions for Class 7 Maths Chapter 10: Operations with Integers – Ganita Prakash Part 2

Complete NCERT Solutions for Class 7 Maths Chapter 10 "Operations with Integers" from the Ganita Prakash Part 2 textbook, covering multiplication, division, and real-world applications of integers.

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Complete NCERT Solutions for Class 7 Maths Chapter 10 “Operations with Integers” from the Ganita Prakash Part 2 textbook, covering multiplication, division, and real-world applications of integers.

A Quick Recap of Integers

Finding number pairs from their sum and difference: if $a+b = \text{Sum}$ and $a-b = \text{Difference}$, then $a = (\text{Sum}+\text{Difference})/2$ and $b = (\text{Sum}-\text{Difference})/2$.

$$\text{Sum}=27, \text{Difference}=9 \rightarrow \text{pair} = (18, 9)$$

$$\text{Sum}=4, \text{Difference}=12 \rightarrow \text{pair} = (8, -4)$$

$$\text{Sum}=0, \text{Difference}=10 \rightarrow \text{pair} = (5, -5)$$

$$\text{Sum}=0, \text{Difference}=-10 \rightarrow \text{pair} = (-5, 5)$$

$$\text{Sum}=-7, \text{Difference}=-1 \rightarrow \text{pair} = (-4, -3)$$

$$\text{Sum}=-7, \text{Difference}=-13 \rightarrow \text{pair} = (-10, 3)$$

Multiplication of Integers

Using token models: (a) $3 \times (-2) = -6$ (b) $(-5) \times (-2) = 10$ (c) $(-4) \times (-1) = 4$ (d) $(-7) \times 3 = -21$

Sign rules for multiplication: multiply the absolute values; if the two integers have different signs, the product is negative; if they have the same sign, the product is positive.

Example: given $123 \times 456 = 56088$: (a) $(-123) \times 456 = -56088$ (b) $(-123) \times (-456) = 56088$ (c) $123 \times (-456) = -56088$

More Products

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

$$(-6) \times (-3) = 18$$

$$(-5) \times (-1) = 5$$

$$(-8) \times 4 = -32$$

$$(-9) \times 10 = -90$$

$$10 \times (-17) = -170$$

Division of Integers

Sign rules for division: same as multiplication — same signs give a positive result, different signs give a negative result.

$$14 \times (-15) = -210$$

$$-16 \times (-5) = 80$$

$$36 \div (-18) = -2$$

$$(-46) \div (-23) = 2$$

Freezing process: room temperature starts at 32°C and drops 5°C every hour for 10 hours. Total drop = $5 \times 10 = 50^{\circ}\text{C}$. Final temperature = $32 - 50 = -18^{\circ}\text{C}$.

Cement company profit/loss: profit of Rs. 8/bag on white cement, loss of Rs. 5/bag on grey cement. (a) Selling 3000 white bags and 5000 grey bags: profit = $3000 \times 8 = \text{Rs. } 24,000$; loss = $5000 \times 5 = \text{Rs. } 25,000$; net = **Rs. 1,000 loss**. (b) If 6400 grey bags are sold, white bags needed for break-even: $8x = 6400 \times 5 = 32,000$, so $x = 4,000$ bags.

Fill in the Blank

$$(-3) \times \underline{\hspace{1cm}} = 27 \rightarrow -9$$

$$5 \times \underline{\hspace{1cm}} = -35 \rightarrow -7$$

$$\underline{\hspace{1cm}} \times (-8) = -56 \rightarrow 7$$

$$\underline{\hspace{1cm}} \times (-12) = 132 \rightarrow -11$$

$$\underline{\hspace{1cm}} \div (-8) = 7 \rightarrow -56$$

$$\underline{\hspace{1cm}} \div 12 = -11 \rightarrow -132$$

Combined Expressions

$$(a) (-5) \times (18 + (-3)) = -5 \times 18 + (-5) \times (-3) = -90 + 15 = -75$$

$$(b) (-7) \times 4 \times (-1) = (-28) \times (-1) = 28$$

$$(c) (-2) \times (-1) \times (-5) \times (-3) = 2 \times 15 = 30$$

$$\text{Division: (a) } (-27) \div 9 = -3 \text{ (b) } 84 \div (-4) = -21 \text{ (c) } (-56) \div (-2) = 28$$

$$\text{Integer whose product with } (-1) \text{ equals: (a) } 27 \rightarrow -27 \text{ (b) } -31 \rightarrow 31 \text{ (c) } -1 \rightarrow 1 \text{ (d) } 1 \rightarrow -1 \text{ (e) } 0 \rightarrow 0$$

If $47 - 56 + 14 - 8 + 2 - 8 + 5 = -4$, find $-47 + 56 - 14 + 8 - 2 + 8 - 5$ without recalculating: this is exactly the negative of the first expression, so the answer = $-(-4) = 4$.

Word Problems and Puzzles

Pattern-machine puzzle (rule: First – [Second $\times$ Third]): row values computed as 28, –48, 8, 31, –17, and the final missing value = **–70**.

Temperature expression: starting at 8°C , dropping $5^{\circ}\text{C}/\text{hour}$ for 4 hours: expression = **$8 - (5 \times 4) = -12^{\circ}\text{C}$** .

Three consecutive integers with product: (a) $-6 \rightarrow$ **–3, –2, –1** (check: $(-3) \times (-2) \times (-1) = -6$) (b) $120 \rightarrow$ **4, 5, 6** (check: $4 \times 5 \times 6 = 120$)

Increasing order of expressions $(-348) + (-1064) = -1412$; $(-348) - (-1064) = 716$; $348 - (-1064) = 1412$; $(-348) \times (-1064) = 370272$; $348 \times (-1064) = -370272$; $348 \times 964 = 335472$. **Increasing order:** $348 \times (-1064) < (-348) + (-1064) < (-348) - (-1064) < 348 - (-1064) < 348 \times 964 < (-348) \times (-1064)$.

Practice more: [Extra Questions for Class 7 Maths Chapter 10](#)

Quick revision: [Revision Notes for Class 7 Maths Chapter 10](#)