Class 7 Integers Worksheet

Thinking Juggernaut

Name: _____ **Date:** _____ **Total Marks:** 24

🔢 Understanding Integers

What are Integers?

Integers are whole numbers that can be positive, negative, or zero: {..., -3, -2, -1, 0, 1, 2, 3, ...}

Key Rules for Integer Operations:

Addition:

- Same signs: Add and keep the sign → (+5) + (+3) = +8, (-5) + (-3) = -8
- Different signs: Subtract and take sign of larger → (+5) + (-3) = +2, (-5) + (+3) = -2

Subtraction:

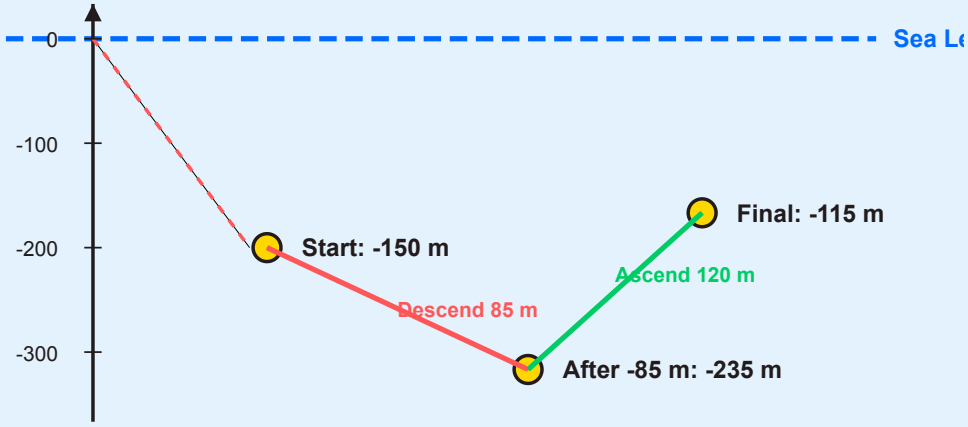
- Change subtraction to addition of opposite → 5 - 3 = 5 + (-3)
- Then apply addition rules

Multiplication & Division:

- Same signs = Positive result → (+) × (+) = (+), (-) × (-) = (+)
- Different signs = Negative result → (+) × (-) = (-), (-) × (+) = (-)

📝 Sample Problem

Problem: A submarine is at 150 m below sea level. It descends 85 m more, then ascends 120 m. What is its final position relative to sea level?



Solution: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Step 1: Initial position = -150 m (below sea level is negative)
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Step 2: Descends 85 m more → -150 + (-85) = -235 m
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Step 3: Ascends 120 m → -235 + 120 = -115 m
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Answer: The submarine is at 115 m below sea level (or -115 m)

Part A: Basic Operations

⭐ **Foundation Level**

1. Calculate: (-15) + (+23)

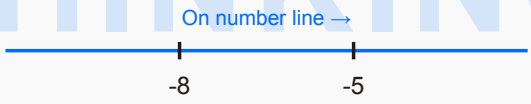
2. Subtract: 18 - 25

Rewrite as: 18 + (-25) = ?

3. Multiply: (-7) × (+6)

Remember: Different signs give negative result

4. Which integer is greater: -5 or -8?



Answer: ____

5. Divide: (-48) ÷ (-6)

Remember: Same signs give positive result

6. Calculate: (-12) + (-8) + (+15)

7. Find the additive inverse of -17

Additive inverse means: number + its inverse = 0

8. Arrange in ascending order: -3, 5, -7, 0, -1, 4

____ < ____ < ____ < ____ < ____ < ____

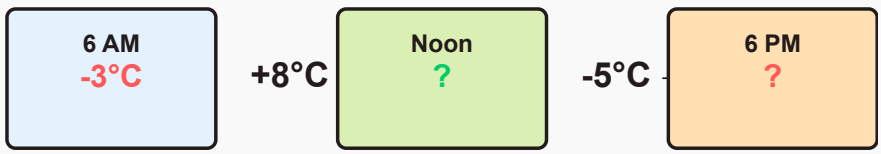
Part B: Multi-Step Problems

⭐⭐ Intermediate Level

9. Calculate: (-25) × 4 + (-30) ÷ 5

Solve multiplication and division first, then add

10. The temperature at 6 AM was -3°C. It rose by 8°C by noon, then dropped by 5°C by 6 PM. What was the temperature at 6 PM?



At noon: ____°C
At 6 PM: ____°C

11. Simplify: [(-18) + 7] × [(-5) + 8]

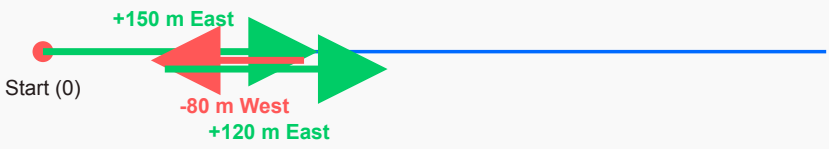
Solve brackets first

12. A diver is at -45 m. A bird is flying at +120 m. What is the vertical distance between them?

Distance = |difference between positions|

13. Calculate: (-8) × (-5) - (-4) × 7

14. A man walks 150 m east (+), then 80 m west (-), then 120 m east (+). What is his final position from the starting point?



Final position: ____ m

15. If a × b = -36 and a = 9, find the value of b

16. Calculate: |(-12) + 5| - |-8|

Absolute value |x| means distance from zero (always positive)

17. A business had a profit of ₹15,000 in January, loss of ₹8,000 in February, and profit of ₹12,000 in March. What is the net result?

Use: Profit = positive, Loss = negative
Net result: ₹____

18. Simplify: (-6) + (-9) + (-4) - (-15)

Change subtraction of negative to addition

Part C: Advanced Applications

⭐⭐⭐ **Challenge Level**

19. A lift starts at ground floor (0). It goes up 12 floors (+12), then down 5 floors (-5), then up 8 floors (+8), then down 15 floors (-15). At which floor is it now? Is it above or below ground level?

Show calculation:
Final floor: ____
Position: _____

20. The sum of two integers is -13. If one integer is 8, find the other integer. If their product is calculated, what will it be?

Other integer: ____
Product: ____

21. In a quiz, +5 marks for correct answer, -2 marks for wrong answer, 0 for unattempted. Rahul attempted 20 questions: 12 correct, 5 wrong, 3 unattempted. What is his score?

Correct: 12	Wrong: 5	Unattempted: 3
12 × (+5)	5 × (-2)	3 × 0

Marks from correct: ____
Marks deducted: ____
Total score: ____

22. Calculate: [(-15) × 4 + 20] ÷ [(-8) + 3]

Solve each bracket separately first

23. The table shows temperature changes in a city over 5 days. If the starting temperature on Monday morning was 8°C, find the temperature at the end of Friday.

Day	Change (°C)
Monday	-3
Tuesday	+5
Wednesday	-2

Thursday	-4
Friday	+6

Show calculation:
Final temperature: ____°C

24. A bank account has ₹5,000. The following transactions occur:

- Deposit: +₹3,500
- Withdrawal: -₹2,800
- Bank charges: -₹150
- Deposit: +₹4,200
- Withdrawal: -₹1,500

What is the final balance? If the bank charges ₹50 for each withdrawal, what would be the balance after including all charges?

Balance after transactions: ₹____
Total withdrawal charges: ₹____
Final balance with charges: ₹____

🔑 Answer Key

Part A: Basic Operations

1. +8 (different signs: 23-15=8, take sign of larger)
2. -7 (18 + (-25) = -7)
3. -42 (different signs give negative: 7×6=42, result is -42)

4. -5 (on number line, -5 is to the right of -8, so -5 is greater)

5. +8 (same signs give positive: 48÷6=8)

6. -5 ((-12)+(-8)=-20, then -20+15=-5)

7. +17 (additive inverse of -17 is +17, because -17+17=0)

8. -7 < -3 < -1 < 0 < 4 < 5

Part B: Multi-Step Problems

9. -106 ((-25)×4=-100, (-30)÷5=-6, then -100+(-6)=-106)

10. Noon: 5°C (-3+8=5), 6 PM: 0°C (5+(-5)=0)

11. -33 ([(-18)+7]×[(-5)+8] = [-11]×[3] = -33)

12. 165 m (120-(-45) = 120+45 = 165 m)

13. 68 ((-8)×(-5)=40, (-4)×7=-28, then 40-(-28)=40+28=68)

14. +190 m or 190 m East (150+(-80)+120=190)

15. b = -4 (9×b=-36, so b=-36÷9=-4)

16. -1 (|(-12)+5|=|-7|=7, |-8|=8, then 7-8=-1)

17. ₹19,000 profit (15000+(-8000)+12000=19000)

18. -4 ((-6)+(-9)+(-4)-(-15) = -6-9-4+15 = -4)

Part C: Advanced Applications

19. Floor 0 (ground level). Calculation: 0+12-5+8-15=0

20. Other integer: -21 (8+x=-13, x=-21). Product: 8×(-21)=-168

21. Correct: 60, Deducted: -10, Total: 50 marks (12×5=60, 5×(-2)=-10, 3×0=0, Total=60-10=50)

22. -8 ([(-15)×4+20]÷[(-8)+3] = [-60+20]÷[-5] = [-40]÷[-5] = 8... Wait, let me recalculate: [-40]÷[-5]=+8, not -8. Answer is +8)

23. 10°C (8+(-3)+5+(-2)+(-4)+6 = 8-3+5-2-4+6 = 10°C)

24. Balance: ₹8,250 (5000+3500-2800-150+4200-1500=8250). Withdrawal charges: ₹100 (2 withdrawals×50). Final: ₹8,150

📊 Performance Analysis & Learning Path

Total Questions: 24 | Total Marks: 24

Score Range	Performance Level	Recommended Action Plan
20-24	⭐⭐⭐ Excellent	**Ready for Advanced Concepts:** • Properties of integers (commutative, associative, distributive) • Integer equations and inequalities • Applications in coordinate geometry • Directed numbers in physics (velocity, acceleration) • Advanced problem-solving with multiple operations
15-19	⭐⭐ Very Good	**Strengthen Core Skills:** • Practice sign rules for multiplication/division daily • Master BODMAS with negative numbers • Work on word problems involving temperature, profit/loss • Solve 15 mixed problems daily for 2 weeks • Focus on multi-step calculations
10-14	⭐ Good Effort	**Build Fundamentals:** • Review addition and subtraction rules thoroughly • Use number line for visualization • Practice sign rules: (+)(+)=+, (-)(-)=+, (+)(-)=- • Do 20 basic problems daily (5 each operation) • Work with teacher/tutor on problem areas • Create flashcards for operation rules

0-9	Needs Improvement	**Back to Basics:** • Understand what integers are (positive, negative, zero) • Master number line representation • Start with addition/subtraction only for 1 week • Use real-life examples (temperature, elevation, money) • Get one-on-one tutoring • Practice with manipulatives (colored chips for +/-) • Review Class 6 integer concepts

Common Mistakes to Avoid:

- ❌ (-5) + (-3) = -2 (WRONG! Same signs → ADD and keep sign = -8)
- ❌ (-5) × (-3) = -15 (WRONG! Same signs → Result is POSITIVE = +15)
- ❌ 5 - (-3) = 2 (WRONG! Subtracting negative means ADD = 5+3 = 8)
- ✅ Always write out the signs clearly in your working

✨ **Outstanding Work Completing This Worksheet!** ✨

Master integers and you'll master mathematics! Keep practicing!

🔥 Download more Class 7 worksheets at thinkingjuggernaut.in
📧 Practice integer operations daily for 15 minutes
📚 Apply integers to real-life situations you encounter!

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