

GRADES

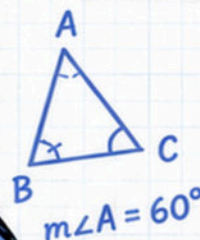
7-9

BUILD
CONFIDENCE.
ONE REP
AT A TIME.

$$2y + 3 = 11$$

$$\sqrt{49} = 7$$

$$3x - 5 = 16$$



-4

Muscle Math Mania

★ PRE-ALGEBRA AND ★
HIGH SCHOOL FUNDAMENTALS

STRONGER SKILLS. EVERY SINGLE REP.



MASTER
PRE-ALGEBRA
CONCEPTS



THINK
CRITICALLY



BUILD
CONFIDENCE



PREPARE FOR
HIGH SCHOOL



SOLVE
STEP BY STEP

SKILLS YOU NEED.
REPS YOU
CONTROL.

How To Use This Book

1. Start with the Algebra 1 Skills Diagnostic. Circle the skills you miss — those are your first workouts.
2. Each unit opens with a mindset page, then runs lessons. Every lesson follows the same pattern: Warm-Up Rep, Coach Notes, Check Your Form, a Worked Example, Try It, a Rep Set, a Challenge, and an HS Fundamentals item. In the error-analysis lesson that closes each unit the Challenge becomes Fix the Rep — you hunt down someone else's mistake instead.
3. Do the worksheet after each lesson. Sets A/B/C ramp from basic form to high-school transfer.
4. Verify with the back-matter Answer Keys — every problem in this book is answered there. When an answer alone is not enough, the Worked Solutions section shows the steps for the Challenge, HS Fundamentals, error-analysis, Mixed Review and Final Review problems.
5. Log each lesson on the Progress Tracker so you can see what still needs another rep.
6. Finish with the High School Fundamentals Module, Mixed Review, and the Final Review practice test.

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Negative Numbers

The Other Half of the Number Line

You've trained on the right side of zero your whole life. This unit claims the other half — the side that runs temperatures below freezing, debt, lost yards, and depth below the surface.

Master the signs here and every equation, graph, and formula later gets easier. Skip it, and the rest of the book fights back.

In this unit you will:

- › Read and order integers and negative rationals
- › Use absolute value and opposites with confidence
- › Add, subtract, multiply, and divide with signs
- › Catch the sign mistakes that cost everyone points



You've trained for this. New level.

1.1 The Number Line Has Two Directions

WARM-UP REP

1. Write the opposite of -14.

2. Write the opposite of 37.

3. Write the opposite of 2.

COACH NOTES

Right of zero is positive; left of zero is negative. The opposite of a number sits the same distance from 0 on the other side.

Absolute value $|n|$ is distance from zero — never negative.

CHECK YOUR FORM

$|-8|$ is not -8. The bars mean distance, so $|-8| = 8$. Strip the sign, keep the size.

WORKED EXAMPLE

Write the opposite of -13.

Step 1: The opposite sits the same distance from 0 on the other side.

Step 2: Flip the sign: positive becomes negative and negative becomes positive.

Answer: 13

TRY IT

1. Write the opposite of 7.

2. $|16|$

REP SET

1. Write the opposite of -30.

2. Write the opposite of -32.

3. Write the opposite of 30.

4. Write the opposite of 13.

5. $|-11|$

6. Order least to greatest: -10, -8, -9, 9

CHALLENGE REP

Order least to greatest: -5, -8, 11, 2

HS FUNDAMENTALS › The freezer reading starts at -9 and rises by 12. Where does it end?

Worksheet 1.1: The Number Line Has Two Directions

Part 1 of 2

1. Write the opposite of -39.

SET A

2. Write the opposite of 18.

SET A

3. Write the opposite of -36.

SET A

4. Write the opposite of -12.

SET A

5. Write the opposite of 11.

SET A

6. $|-25|$

SET B

7. $|1|$

SET B

8. $|-4|$

SET B

Worksheet 1.1: The Number Line Has Two Directions

Part 2 of 2

9. $|-13|$

SET B

10. $|-23|$

SET B

11. Order least to greatest: -1, 6, -4, -8

SET C

12. Order least to greatest: 10, 9, -6, 12

SET C

13. Order least to greatest: -14, -13, 9, -2

SET C

14. Order least to greatest: 10, -9, -10, 3

SET C

15. Order least to greatest: 3, -9, -15, -10

SET C

1.2 Adding Integers

WARM-UP REP

1. $(-24) + (-25)$

2. $5 + 9$

3. $(-2) + (-12)$

COACH NOTES

Same signs: add the values and keep the sign. Different signs: subtract and keep the sign of the number farther from zero.

A number and its opposite make a zero pair.

CHECK YOUR FORM

Two negatives don't make a positive when you ADD. $-4 + (-3) = -7$, not 7.

WORKED EXAMPLE

$19 + 24$

Step 1: Signs match, so add the sizes: $19 + 24 = 43$.

Step 2: Both values are positive, so keep that sign: 43.

Answer: 43

TRY IT

1. $19 + (-21)$

2. A swim-split difference starts at -7 and rises by 24. Where does it end?

REP SET

1. $10 + (-2)$

2. $6 + (-22)$

3. $1 + (-10)$

4. $4 + 17$

5. $(-1) + (-16)$

6. The morning temperature starts at -12 and rises by 11. Where does it end?

CHALLENGE REP

$7 + (-10)$

HS FUNDAMENTALS › A running-back's total yardage starts at -12 and rises by 15. Where does it end?

Worksheet 1.2: Adding Integers

Part 1 of 2

1. $21 + 20$

SET A

2. $(-12) + 7$

SET A

3. $19 + (-3)$

SET A

4. $19 + (-24)$

SET A

5. $(-22) + 20$

SET A

6. $21 + 11$

SET A

7. $(-11) + 7$

SET B

8. $(-14) + (-18)$

SET B

Worksheet 1.2: Adding Integers

Part 2 of 2

9. $(-7) + (-19)$

SET B

10. $(-16) + (-18)$

SET B

11. $(-17) + 6$

SET B

12. A checking-account balance starts at -12 and rises by 16. Where does it end?

13. A debit-card balance starts at -14 and rises by 16. Where does it end?

14. A debit-card balance starts at -18 and rises by 21. Where does it end?

15. The wind-chill value starts at -3 and rises by 6. Where does it end?

Answer Keys

Check yourself after each block. Conceptual answers may be phrased differently — match the idea.

Unit 0 — Algebra 1 Skills Diagnostic

- 1) -24
- 2) -16
- 3) 30
- 4) 15
- 5) $\frac{15}{4}$
- 6) $4x - 16$
- 7) 9
- 8) a^{13}
- 9) b^{12}
- 10) $x = 7$
- 11) $x = -5$
- 12) $x < -7$
- 13) -21
- 14) 0
- 15) $y = -x - 1$
- 16) (2, -2)
- 17) 53
- 18) $\frac{1}{24}$

Unit 1 — Negative Numbers

Lesson 1.1 — The Number Line Has Two Directions

- Warm 1) 14
 Warm 2) -37
 Warm 3) -2
 Try 1) -7
 Try 2) 16
 Rep 1) 30
 Rep 2) 32
 Rep 3) -30
 Rep 4) -13
 Rep 5) 11
 Rep 6) -10, -9, -8, 9
 Challenge) -8, -5, 2, 11
 HS Fundamentals) 3
 WS 1) 39
 WS 2) -18
 WS 3) 36
 WS 4) 12
 WS 5) -11
 WS 6) 25
 WS 7) 1
 WS 8) 4
 WS 9) 13
 WS 10) 23
 WS 11) -8, -4, -1, 6
 WS 12) -6, 9, 10, 12
 WS 13) -14, -13, -2, 9
 WS 14) -10, -9, 3, 10
 WS 15) -15, -10, -9, 3

Lesson 1.2 — Adding Integers

- Warm 1) -49
 Warm 2) 14
 Warm 3) -14
 Try 1) -2

- Try 2) 17
 Rep 1) 8
 Rep 2) -16
 Rep 3) -9
 Rep 4) 21
 Rep 5) -17
 Rep 6) -1
 Challenge) -3
 HS Fundamentals) 3
 WS 1) 41
 WS 2) -5
 WS 3) 16
 WS 4) -5
 WS 5) -2
 WS 6) 32
 WS 7) -4
 WS 8) -32
 WS 9) -26
 WS 10) -34
 WS 11) -11
 WS 12) 4
 WS 13) 2
 WS 14) 3
 WS 15) 3

Lesson 1.3 — Subtracting Integers

- Warm 1) 1
 Warm 2) -8
 Warm 3) -20
 Try 1) -30
 Try 2) 1
 Rep 1) -8
 Rep 2) -19
 Rep 3) 22
 Rep 4) -16
 Rep 5) -17
 Rep 6) -8
 Challenge) -24
 HS Fundamentals) 16
 WS 1) -21
 WS 2) 11
 WS 3) 36
 WS 4) -7
 WS 5) -8
 WS 6) -13
 WS 7) -3
 WS 8) 39
 WS 9) 4
 WS 10) 8
 WS 11) -12
 WS 12) -2
 WS 13) -13
 WS 14) -22
 WS 15) -9

Lesson 1.4 — Multiplying and Dividing Integers

- Warm 1) -16
 Warm 2) -18



THAT WAS THE WARM-UP.

Ready for the full workout?

The Pre-Algebra Workbook · Grades 7-9

WHAT'S IN THE FULL BOOK

- 68 lessons across 11 units
- Integers through functions and graphing
- 1,904 answer-key entries and 281 worked solutions
- Glossary, reference sheet and progress tracker

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