

BIG IDEAS MATH
Course 3 (Common Core)
California Edition

Foundations Review

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Dedication. For Lizbeth. You are smart, brilliant, and capable of anything you set your mind to. Please remember to take breaks, drink water, and get some fresh air, eat good yums, mimis, and take your time.

Contents

0	Absolute Foundations	6
0.1	Integers & Signs	6
0.2	Order of Operations	12
0.3	Distributive Property	17
0.4	Mixed Foundations Review	22
1	Equations	29
1.1	Solving Simple Equations	29
1.2	Solving Multi-Step Equations	30
1.3	Solving Equations with Variables on Both Sides	31
1.4	Rewriting Equations and Formulas	32
2	Transformations	33
2.1	Congruent Figures	33
2.2	Translations	34
2.3	Reflections	35
2.4	Rotations	36
2.5	Similar Figures	37
2.6	Perimeters and Areas of Similar Figures	38
2.7	Dilations	39
3	Angles and Triangles	40
3.1	Parallel Lines and Transversals	40
3.2	Angles of Triangles	41
3.3	Angles of Polygons	42
3.4	Using Similar Triangles	43
3.5	Chapter 3 Review	44

4	Graphing and Writing Linear Equations	45
4.1	Graphing Linear Equations	45
4.2	Slope of a Line	46
4.3	Graphing Proportional Relationships	47
4.4	Graphing Linear Equations in Slope-Intercept Form	48
4.5	Graphing Linear Equations in Standard Form	49
4.6	Writing Equations in Slope-Intercept Form	50
4.7	Writing Equations in Point-Slope Form	51
4.8	Chapter 4 Review	52
5	Systems of Linear Equations	53
5.1	Solving Systems of Linear Equations by Graphing	53
5.2	Section 5.2	54
5.3	Section 5.3	55
5.4	Section 5.4	56
5.5	Chapter 5 Review	57
6	Functions	58
6.1	Section 6.1	58
6.2	Section 6.2	59
6.3	Section 6.3	60
6.4	Section 6.4	61
6.5	Section 6.5	62
6.6	Chapter 6 Review	63
7	Real Numbers and the Pythagorean Theorem	64
7.1	Section 7.1	64
7.2	Section 7.2	65
7.3	Section 7.3	66
7.4	Section 7.4	67
7.5	Section 7.5	68
7.6	Chapter 7 Review	69
8	Volume and Similar Solids	70
8.1	Section 8.1	70
8.2	Section 8.2	71
8.3	Section 8.3	72

8.4	Section 8.4	73
8.5	Chapter 8 Review	74
9	Data Analysis and Displays	75
9.1	Section 9.1	75
9.2	Section 9.2	76
9.3	Section 9.3	77
9.4	Section 9.4	78
9.5	Chapter 9 Review	79
10	Exponents and Scientific Notation	80
10.1	Section 10.1	80
10.2	Section 10.2	81
10.3	Section 10.3	82
10.4	Section 10.4	83
10.5	Section 10.5	84
10.6	Section 10.6	85
10.7	Section 10.7	86
10.8	Chapter 10 Review	87
A	Solutions	88
A.1	Chapter 0 — Absolute Foundations	89
A.1.1	0.1 Integers & Signs	89
A.1.2	0.2 Order of Operations	89
A.1.3	0.3 Distributive Property	89
A.2	Chapter 1 — Equations	89
A.3	Chapter 2 — Transformations	89
A.4	Chapter 3 — Angles and Triangles	89
A.5	Chapter 4 — Graphing and Writing Linear Equations	89
A.6	Chapter 5 — Systems of Linear Equations	89
A.7	Chapter 6 — Functions	89
A.8	Chapter 7 — Real Numbers and the Pythagorean Theorem	89
A.9	Chapter 8 — Volume and Similar Solids	89
A.10	Chapter 9 — Data Analysis and Displays	89
A.11	Chapter 10 — Exponents and Scientific Notation	89

B	Worked Examples	90
B.1	Chapter 0 — Absolute Foundations	91
B.1.1	0.1 Integers & Signs — Worked Examples	91
B.1.2	0.3 Distributive Property — Worked Examples	91
B.2	Chapter 1 — Equations	91
B.3	Chapter 2 — Transformations	91
B.4	Chapter 3 — Angles and Triangles	91
B.5	Chapter 4 — Graphing and Writing Linear Equations	91
B.6	Chapter 5 — Systems of Linear Equations	91
B.7	Chapter 6 — Functions	91
B.8	Chapter 7 — Real Numbers and the Pythagorean Theorem	91
B.9	Chapter 8 — Volume and Similar Solids	91
B.10	Chapter 9 — Data Analysis and Displays	91
B.11	Chapter 10 — Exponents and Scientific Notation	91

Chapter 0

Absolute Foundations

0.1 Integers & Signs

[← Contents](#)[✓ Solutions](#)

Integers & Signs

Chapter 0 — Absolute Foundations

Show all work. Slow down on negative signs. When you feel stuck, rewrite subtraction as “add the opposite.”

Name: _____ Date: _____

Key Ideas — Integers & Signs

- **Integers** are whole numbers and their opposites: $\dots, -3, -2, -1, 0, 1, 2, 3, \dots$
- **Opposites:** a and $-a$ are opposites. Example: the opposite of 7 is -7 .
- **Absolute value:** $|a|$ is the distance from 0. Always nonnegative.
- **Subtracting:** $a - b = a + (-b)$ (subtracting is adding the opposite).
- **Sign rules:**
 - $(-)(-) = (+)$ and $(+)(-) = (-)$ and $(-)(+) = (-)$
 - Same signs \Rightarrow add magnitudes and keep the sign.

– Different signs \Rightarrow subtract magnitudes and keep the sign of the larger magnitude.

• **Distributing negatives:**

$$-(a + b) = -a - b \quad \text{and} \quad -(a - b) = -a + b.$$

Quick Examples (read, then try the practice)

Example 1. Rewrite subtraction as addition:

$$6 - (-4) = 6 + 4 = 10.$$

Example 2. Different signs (subtract magnitudes):

$$-12 + 5 = -(12 - 5) = -7.$$

Example 3. Distribute a negative:

$$-(3x - 8) = -3x + 8.$$

Example 4. Combine like terms carefully:

$$-2x + 7x - (x - 5) = 5x - x + 5 = 4x + 5.$$

Practice A — Integer Operations

Compute. (No calculators.)

1. $7 + (-3) =$

2. $-8 + (-6) =$

3. $-15 + 9 =$

4. $12 - 19 =$

5. $-4 - 11 =$

6. $-13 - (-5) =$

7. $18 - (-7) =$

8. $(-6)(-5) =$

9. $(9)(-4) =$

10. $\frac{-42}{6} =$

11. $\frac{-36}{-9} =$

12. $|-17| =$

Practice B — Decode the Signs

Rewrite each expression to make the signs clearer, then simplify.

1. $10 - (-3) + (-2)$

2. $-5 - (-8) - 4$

3. $-12 + 6 - (-9)$

4. $3 - 7 + (-11)$

5. $-20 - (-6) + 2$

6. $-1 - (-1) - (-1)$

Practice C — Distribute with Negatives

Distribute. Then simplify.

1. $-(x + 9)$

2. $-(4x - 7)$

3. $-3(2x - 5)$

4. $2 - (x - 6)$

5. $-(2x + 3y)$

6. $-(a - b + c)$

7. $-5(3m + 2) - (-4m)$

Practice D — Simplify Expressions

Simplify completely.

1. $-7x + 3x$

2. $8y - (3y - 5)$

3. $-(2x - 3) + (x - 10)$

4. $4a - 2(a - 6)$

5. $-3(2p - 1) + 5p$

6. $6 - 2(4 - x)$

Challenge (optional)

Take your time. Check your signs.

1. Simplify: $-(2x - 5) - (3x + 4) + 9$

2. Simplify: $-(4 - (2y - 7))$

3. Simplify: $3(-(x - 2)) - 2(x - 6)$

4. A number is -8 units from 0. What are the possible numbers? Explain.

0.2 Order of Operations

[← Contents](#)

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Order of Operations

Chapter 0 — Absolute Foundations

Show all work. Rewrite subtraction as “add the opposite” when helpful. Use parentheses to keep your steps organized.

Name: _____ Date: _____

Key Idea — Order of Operations (PEMDAS)

Always do operations in this order:

1. **P**arentheses (grouping symbols)
2. **E**xponents
3. **M**ultiplication and **D**ivision *from left to right*
4. **A**ddition and **S**ubtraction *from left to right*

Important: Multiplication and division are a *pair* (same priority). Addition and subtraction are a *pair* (same priority).

Common Mistakes to Avoid

- Doing addition before multiplication. Example: $3 + 2 \cdot 5$ is $3 + 10 = 13$, not $(3 + 2) \cdot 5$.
- Forgetting left-to-right for \div and \times . Example: $24 \div 3 \cdot 2$ is $(24 \div 3) \cdot 2 = 16$.
- Losing negative signs. Rewrite subtraction as addition: $a - b = a + (-b)$.
- Forgetting parentheses after a minus sign: $-(x - 7) = -x + 7$.

Worked Examples (follow the order)

Example 1. Evaluate: $6 + 3 \cdot 4$

$$6 + 3 \cdot 4 = 6 + 12 = 18.$$

Example 2. Evaluate: $24 \div 3 \cdot 2$

$$24 \div 3 \cdot 2 = (24 \div 3) \cdot 2 = 8 \cdot 2 = 16.$$

Example 3. Evaluate: $-(5 - 12) + 3^2$

$$-(5 - 12) + 3^2 = -(-7) + 9 = 7 + 9 = 16.$$

Example 4. Simplify: $2(3x - (x - 4))$

$$2(3x - (x - 4)) = 2(3x - x + 4) = 2(2x + 4) = 4x + 8.$$

Mini-check. Evaluate: $10 - 2 \cdot (3 + 1) \Rightarrow$ _____

Practice A — Evaluate (Warm-Up)

Evaluate.

1. $8 + 2 \cdot 6$

2. $30 - 5 \cdot 4$

3. $18 \div 3 + 7$

4. $4^2 - 3 \cdot 5$

5. $12 \div 2 \cdot 3$

6. $36 \div (6 \cdot 3)$

7. $7(5 - 2) + 1$

8. $9 - (2 + 4)^2$

Practice B — Parentheses & Negatives

Evaluate.

1. $-(8 - 13) + 6$

2. $-3(2 - 7)$

3. $5 - (3 - 9)$

4. $2(4 - (1 - 6))$

5. $-2^3 + 10$

6. $(-2)^3 + 10$

Practice C — Simplify (Variables)

Simplify completely.

1. $3x + 2x \cdot 4$

2. $10 - 2(3x + 1)$

3. $4(x + 2) - 3(x - 5)$

4. $2(3x - (x - 7))$

5. $6 - 2(4 - x)$

6. $-(2x - 3) + 5(x - 1)$

Challenge (optional)

Take your time. Organize with parentheses.

1. Evaluate: $48 \div 6 \cdot 2 + 3^2$

2. Simplify: $2(5 - (3x - 2)) - (x - 4)$

3. Explain in one sentence why $24 \div 3 \cdot 2 \neq 24 \div (3 \cdot 2)$.

0.3 Distributive Property

[← Contents](#)

[✓ Solutions](#)

Distributive Property

Chapter 0 — Absolute Foundations

*Directions: Show all work. Distribute to **every** term inside parentheses.*

Name: _____ Date: _____

Key Idea — Distributive Property

Distribute (multiply) to every term inside the parentheses.

Form: $a(b + c) = ab + ac$ and $a(b - c) = ab - ac$.

Helpful memory: *Whatever is outside the parentheses gets multiplied by each term inside.*

Common Mistakes to Avoid

- **Forgetting a term:** $3(x + 5)$ must become $3x + 15$ (not just $3x + 5$).
- **Sign mistakes:** $-2(x - 4) = -2x + 8$.
- **Parentheses matter:** $-(x - 7) = -x + 7$.
- **Combining unlike terms too early:** Distribute first, then simplify.

Worked Examples (Follow the Steps)

Example 1. Expand: $4(x + 3)$

$$4(x + 3) = 4 \cdot x + 4 \cdot 3 = 4x + 12.$$

Example 2. Expand: $-3(2x - 5)$

$$-3(2x - 5) = (-3) \cdot 2x + (-3) \cdot (-5) = -6x + 15.$$

Example 3. Expand and simplify: $2(x + 4) + 3(x - 1)$

$$2(x + 4) + 3(x - 1) = (2x + 8) + (3x - 3) = 5x + 5.$$

Example 4. Factor using the distributive property (reverse direction): $6x + 18$

$$6x + 18 = 6(x + 3).$$

Your turn (mini-check). Expand: $-(x + 9) \Rightarrow$ _____

Practice A — Distribute (Warm-Up)

Expand. (Distribute to *every* term.)

1. $3(x + 7)$

2. $5(x - 2)$

3. $-4(x + 6)$

4. $2(3x + 1)$

5. $-7(2x - 5)$

6. $\frac{1}{2}(8x - 10)$

Practice B — Distribute with Negatives and Parentheses

Expand and simplify.

1. $-(x - 8)$

2. $-(2x + 3)$

3. $-2(x - 9)$

4. $-3(4x + 2)$

5. $2 - (x - 5)$

6. $7 - (2x + 1)$

Practice C — Combine Like Terms After Distributing

Expand, then simplify completely.

1. $2(x + 5) + x$

2. $3(x - 4) + 2x$

3. $4(x + 1) - 2(x - 3)$

4. $-3(x - 2) + 5(x + 1)$

5. $2(2x - 1) + 3(x + 4)$

6. $5(x - 3) - 2(3x - 7)$

Practice D — Factor (Distribute Backwards)

Factor out the greatest common factor (GCF).

1. $8x + 24$

2. $15x - 10$

3. $12x + 18$

4. $9x - 27$

5. $14x + 21$

6. $6x - 42$

Practice E — Spot the Distributive Property

For each, circle the part where the distributive property is used, then write the simplified result.

1. $3(x + 2) + 3(x - 5)$

2. $10(0.3x + 0.7)$

3. $2(5 + x)$

4. $-(x - 4) + 2(x - 4)$

Challenge (Optional)

These are a bit harder — try your best.

1. Find x if $3(x - 2) = 2x + 7$.

2. Simplify: $2(3x - (x - 4))$.

0.4 Mixed Foundations Review

[← Contents](#)[✓ Solutions](#)

Mixed Foundations Review

Chapter 0 — Absolute Foundations

Show all work. Use PEMDAS. Rewrite subtraction as “add the opposite.” Distribute to every term. Keep track of negative signs carefully.

Name: _____ Date: _____

Skills This Review Mixes

- **Integers & signs:** adding/subtracting negatives; multiplying/dividing signs; rewriting subtraction.
- **Distributive property:** $a(b + c) = ab + ac$ and $-(b - c) = -b + c$.
- **Order of operations:** parentheses, exponents, multiply/divide left to right, add/subtract left to right.
- **Simplify & solve:** combine like terms, then isolate the variable.

Part A — Evaluate & Simplify (Warm-Up)

Evaluate or simplify.

1. $8 - 3 \cdot (5 - 7)$

2. $-12 + 4 \cdot 3 - 6$

3. $24 \div 3 \cdot 2 - 5$

4. $-(6 - 14) + 2^3$

5. $-3(2 - (5 - 9))$

6. $5 - (3 - (2 - 7))$

7. $-2^3 + 10$

8. $(-2)^3 + 10$

Part B — Distribute, Then Combine Like Terms

Simplify completely.

1. $-(x + 7) + 3x$

2. $2(3x - 5) - (x - 4)$

3. $-(4x - 9) - 2(x + 3)$

4. $5 - 3(2x - 1)$

5. $-2(3y - 8) + (y - 5)$

6. $4(2a - (a - 6))$

7. $-(2m - 3n + 4) + 2(m + n)$

Part C — Solve Equations (Watch the Signs)

Solve for the variable. Check by substitution when you can.

1. $x - 9 = -4$

2. $-7 = x + 3$

3. $-3x = 24$

4. $\frac{x}{-6} = -5$

5. $2x - 5 = 11$

6. $-4x + 9 = -19$

7. $3(x - 4) = -18$

8. $-2(x + 7) = 10$

9. $5 - (x - 3) = -4$

10. $2(3x - 1) - 4 = 8$

Part D — Multi-Step (All Skills Together)

Simplify first, then solve.

1. $3 - (2x - 7) = 10$

2. $-(4x - 5) + 2x = 13$

3. $2(x - 6) - 3(x + 1) = -8$

4. $5(2x - 3) + 4 = 3(3x + 2)$

5. $\frac{1}{2}(6x - 8) - (x - 3) = 5$

Challenge (optional)

These are harder. Take your time and write neat steps.

1. A student earns \$12 per hour. They worked 5 hours, but had a \$8 fee taken out. Write and evaluate an expression for their pay.
2. The temperature was -3°F . Overnight it dropped 7 degrees, then rose 5 degrees. What is the final temperature?

3. Solve and interpret: $-2(x - 4) + 3 = 17$. (What number makes the equation true?)

4. True or false? Explain: $-(a - b) = -a - b$.

Chapter 1

Equations

1.1 Solving Simple Equations

1.2 Solving Multi-Step Equations

1.3 Solving Equations with Variables on Both Sides

1.4 Rewriting Equations and Formulas

Chapter 2

Transformations

2.1 Congruent Figures

2.2 Translations

2.3 Reflections

2.4 Rotations

2.5 Similar Figures

2.6 Perimeters and Areas of Similar Figures

2.7 Dilations

Chapter 3

Angles and Triangles

3.1 Parallel Lines and Transversals

3.2 Angles of Triangles

3.3 Angles of Polygons

3.4 Using Similar Triangles

3.5 Chapter 3 Review

Chapter 4

Graphing and Writing Linear Equations

4.1 Graphing Linear Equations

4.2 Slope of a Line

4.3 Graphing Proportional Relationships

4.4 Graphing Linear Equations in Slope-Intercept Form

4.5 Graphing Linear Equations in Standard Form

4.6 Writing Equations in Slope-Intercept Form

4.7 Writing Equations in Point-Slope Form

4.8 Chapter 4 Review

Chapter 5

Systems of Linear Equations

5.1 Solving Systems of Linear Equations by Graphing

5.2 Section 5.2

5.3 Section 5.3

5.4 Section 5.4

5.5 Chapter 5 Review

Chapter 6

Functions

6.1 Section 6.1

6.2 Section 6.2

6.3 Section 6.3

6.4 Section 6.4

6.5 Section 6.5

6.6 Chapter 6 Review

Chapter 7

Real Numbers and the Pythagorean Theorem

7.1 Section 7.1

7.2 Section 7.2

7.3 Section 7.3

7.4 Section 7.4

7.5 Section 7.5

7.6 Chapter 7 Review

Chapter 8

Volume and Similar Solids

8.1 Section 8.1

8.2 Section 8.2

8.3 Section 8.3

8.4 Section 8.4

8.5 Chapter 8 Review

Chapter 9

Data Analysis and Displays

9.1 Section 9.1

9.2 Section 9.2

9.3 Section 9.3

9.4 Section 9.4

9.5 Chapter 9 Review

Chapter 10

Exponents and Scientific Notation

10.1 Section 10.1

10.2 Section 10.2

10.3 Section 10.3

10.4 Section 10.4

10.5 Section 10.5

10.6 Section 10.6

10.7 Section 10.7

10.8 Chapter 10 Review

Appendix A

Solutions

A.1 Chapter 0 — Absolute Foundations

A.1.1 0.1 Integers & Signs

Practice A — Integer Operations

1. $7 + (-3) = 4$
2. $-8 + (-6) = -14$
3. $-15 + 9 = -6$
4. $12 - 19 = -7$
5. $-4 - 11 = -15$
6. $-13 - (-5) = -13 + 5 = -8$
7. $18 - (-7) = 18 + 7 = 25$
8. $(-6)(-5) = 30$
9. $(9)(-4) = -36$
10. $\frac{-42}{6} = -7$

$$11. \frac{-36}{-9} = 4$$

$$12. |-17| = 17$$

Practice B — Decode the Signs

$$1. 10 - (-3) + (-2) = 10 + 3 - 2 = 11$$

$$2. -5 - (-8) - 4 = -5 + 8 - 4 = -1$$

$$3. -12 + 6 - (-9) = -12 + 6 + 9 = 3$$

$$4. 3 - 7 + (-11) = 3 - 7 - 11 = -15$$

$$5. -20 - (-6) + 2 = -20 + 6 + 2 = -12$$

$$6. -1 - (-1) - (-1) = -1 + 1 + 1 = 1$$

Practice C — Distribute with Negatives

$$1. -(x + 9) = -x - 9$$

$$2. -(4x - 7) = -4x + 7$$

$$3. -3(2x - 5) = -6x + 15$$

$$4. 2 - (x - 6) = 2 - x + 6 = 8 - x$$

$$5. -(2x + 3y) = -2x - 3y$$

$$6. -(a - b + c) = -a + b - c$$

$$7. -5(3m + 2) - (-4m) = (-15m - 10) + 4m = -11m - 10$$

Practice D — Simplify Expressions

$$1. -7x + 3x = -4x$$

2. $8y - (3y - 5) = 8y - 3y + 5 = 5y + 5$

3. $-(2x - 3) + (x - 10) = (-2x + 3) + x - 10 = -x - 7$

4. $4a - 2(a - 6) = 4a - 2a + 12 = 2a + 12$

5. $-3(2p - 1) + 5p = (-6p + 3) + 5p = -p + 3$

6. $6 - 2(4 - x) = 6 - (8 - 2x) = 2x - 2$

Challenge (optional)

1. $-(2x - 5) - (3x + 4) + 9 = (-2x + 5) + (-3x - 4) + 9 = -5x + 10$

2. $-(4 - (2y - 7)) = -(4 - 2y + 7) = -(11 - 2y) = 2y - 11$

3. $3(-(x - 2)) - 2(x - 6) = 3(-x + 2) - (2x - 12) = -5x + 18$

4. A number that is -8 units from 0 can be 8 or -8 .

A.1.2 0.2 Order of Operations

Practice A — Evaluate (Warm-Up)

1. $8 + 2 \cdot 6 = 8 + 12 = 20$

2. $30 - 5 \cdot 4 = 30 - 20 = 10$

3. $18 \div 3 + 7 = 6 + 7 = 13$

4. $4^2 - 3 \cdot 5 = 16 - 15 = 1$

5. $12 \div 2 \cdot 3 = (12 \div 2) \cdot 3 = 6 \cdot 3 = 18$

6. $36 \div (6 \cdot 3) = 36 \div 18 = 2$

7. $7(5 - 2) + 1 = 7 \cdot 3 + 1 = 22$

$$8. 9 - (2 + 4)^2 = 9 - 6^2 = 9 - 36 = -27$$

Practice B — Parentheses & Negatives

$$1. -(8 - 13) + 6 = -(-5) + 6 = 11$$

$$2. -3(2 - 7) = -3(-5) = 15$$

$$3. 5 - (3 - 9) = 5 - (-6) = 11$$

$$4. 2(4 - (1 - 6)) = 2(4 - (-5)) = 2 \cdot 9 = 18$$

$$5. -2^3 + 10 = -(2^3) + 10 = -8 + 10 = 2$$

$$6. (-2)^3 + 10 = -8 + 10 = 2$$

Practice C — Simplify (Variables)

$$1. 3x + 2x \cdot 4 = 3x + 8x = 11x$$

$$2. 10 - 2(3x + 1) = 10 - (6x + 2) = 8 - 6x$$

$$3. 4(x + 2) - 3(x - 5) = (4x + 8) - (3x - 15) = x + 23$$

$$4. 2(3x - (x - 7)) = 2(3x - x + 7) = 2(2x + 7) = 4x + 14$$

$$5. 6 - 2(4 - x) = 6 - (8 - 2x) = 2x - 2$$

$$6. -(2x - 3) + 5(x - 1) = (-2x + 3) + (5x - 5) = 3x - 2$$

Challenge (optional)

$$1. 48 \div 6 \cdot 2 + 3^2 = (48 \div 6) \cdot 2 + 9 = 8 \cdot 2 + 9 = 25$$

$$2. 2(5 - (3x - 2)) - (x - 4) = 2(7 - 3x) - x + 4 = 18 - 7x$$

$$3. \text{ Because division and multiplication have the same priority, you work left-to-right: } 24 \div 3 \cdot 2 = (24 \div 3) \cdot 2.$$

A.1.3 0.3 Distributive Property

Your turn (mini-check)

$$-(x + 9) = -x - 9$$

Practice A — Distribute (Warm-Up)

1. $3(x + 7) = 3x + 21$

2. $5(x - 2) = 5x - 10$

3. $-4(x + 6) = -4x - 24$

4. $2(3x + 1) = 6x + 2$

5. $-7(2x - 5) = -14x + 35$

6. $\frac{1}{2}(8x - 10) = 4x - 5$

Practice B — Distribute with Negatives and Parentheses

1. $-(x - 8) = -x + 8$

2. $-(2x + 3) = -2x - 3$

3. $-2(x - 9) = -2x + 18$

4. $-3(4x + 2) = -12x - 6$

5. $2 - (x - 5) = 2 - x + 5 = 7 - x$

6. $7 - (2x + 1) = 7 - 2x - 1 = 6 - 2x$

Practice C — Combine Like Terms After Distributing

1. $2(x + 5) + x = (2x + 10) + x = 3x + 10$

2. $3(x - 4) + 2x = (3x - 12) + 2x = 5x - 12$

$$3. 4(x + 1) - 2(x - 3) = (4x + 4) - (2x - 6) = 2x + 10$$

$$4. -3(x - 2) + 5(x + 1) = (-3x + 6) + (5x + 5) = 2x + 11$$

$$5. 2(2x - 1) + 3(x + 4) = (4x - 2) + (3x + 12) = 7x + 10$$

$$6. 5(x - 3) - 2(3x - 7) = (5x - 15) - (6x - 14) = -x - 1$$

Practice D — Factor (Distribute Backwards)

$$1. 8x + 24 = 8(x + 3)$$

$$2. 15x - 10 = 5(3x - 2)$$

$$3. 12x + 18 = 6(2x + 3)$$

$$4. 9x - 27 = 9(x - 3)$$

$$5. 14x + 21 = 7(2x + 3)$$

$$6. 6x - 42 = 6(x - 7)$$

Practice E — Spot the Distributive Property

$$1. 3(x + 2) + 3(x - 5) = (3x + 6) + (3x - 15) = 6x - 9$$

$$2. 10(0.3x + 0.7) = 3x + 7$$

$$3. 2(5 + x) = 10 + 2x = 2x + 10$$

$$4. -(x - 4) + 2(x - 4) = (-x + 4) + (2x - 8) = x - 4$$

Challenge (Optional)

$$1. 3(x - 2) = 2x + 7 \Rightarrow 3x - 6 = 2x + 7 \Rightarrow x = 13$$

$$2. 2(3x - (x - 4)) = 2(3x - x + 4) = 2(2x + 4) = 4x + 8$$

A.1.4 0.4 Mixed Foundations Review

Part A — Evaluate & Simplify (Warm-Up)

1. $8 - 3 \cdot (5 - 7) = 8 - 3 \cdot (-2) = 8 + 6 = 14$

2. $-12 + 4 \cdot 3 - 6 = -12 + 12 - 6 = -6$

3. $24 \div 3 \cdot 2 - 5 = (24 \div 3) \cdot 2 - 5 = 8 \cdot 2 - 5 = 11$

4. $-(6 - 14) + 23 = -(-8) + 23 = 31$

5. $-3(2 - (5 - 9)) = -3(2 - (-4)) = -3 \cdot 6 = -18$

6. $5 - (3 - (2 - 7)) = 5 - (3 - (-5)) = 5 - 8 = -3$

7. $-2^3 + 10 = -(2^3) + 10 = -8 + 10 = 2$

8. $(-2)^3 + 10 = -8 + 10 = 2$

Part B — Distribute, Then Combine Like Terms

1. $-(x + 7) + 3x = -x - 7 + 3x = 2x - 7$

2. $2(3x - 5) - (x - 4) = (6x - 10) - x + 4 = 5x - 6$

3. $-(4x - 9) - 2(x + 3) = (-4x + 9) + (-2x - 6) = -6x + 3$

4. $5 - 3(2x - 1) = 5 - (6x - 3) = 8 - 6x$

5. $-2(3y - 8) + (y - 5) = (-6y + 16) + y - 5 = -5y + 11$

6. $4(2a - (a - 6)) = 4(a + 6) = 4a + 24$

7. $-(2m - 3n + 4) + 2(m + n) = (-2m + 3n - 4) + (2m + 2n) = 5n - 4$

Part C — Solve Equations (Watch the Signs)

1. $x - 9 = -4 \Rightarrow x = 5$
2. $-7 = x + 3 \Rightarrow x = -10$
3. $-3x = 24 \Rightarrow x = -8$
4. $\frac{x}{-6} = -5 \Rightarrow x = 30$
5. $2x - 5 = 11 \Rightarrow 2x = 16 \Rightarrow x = 8$
6. $-4x + 9 = -19 \Rightarrow -4x = -28 \Rightarrow x = 7$
7. $3(x - 4) = -18 \Rightarrow x - 4 = -6 \Rightarrow x = -2$
8. $-2(x + 7) = 10 \Rightarrow x + 7 = -5 \Rightarrow x = -12$
9. $5 - (x - 3) = -4 \Rightarrow 5 - x + 3 = -4 \Rightarrow 8 - x = -4 \Rightarrow x = 12$
10. $2(3x - 1) - 4 = 8 \Rightarrow 6x - 6 = 8 \Rightarrow 6x = 14 \Rightarrow x = \frac{7}{3}$

Part D — Multi-Step (All Skills Together)

1. $3 - (2x - 7) = 10 \Rightarrow 3 - 2x + 7 = 10 \Rightarrow 10 - 2x = 10 \Rightarrow x = 0$
2. $-(4x - 5) + 2x = 13 \Rightarrow -4x + 5 + 2x = 13 \Rightarrow -2x = 8 \Rightarrow x = -4$
3. $2(x - 6) - 3(x + 1) = -8 \Rightarrow (2x - 12) - (3x + 3) = -8 \Rightarrow -x - 15 = -8 \Rightarrow x = -7$
4. $5(2x - 3) + 4 = 3(3x + 2) \Rightarrow 10x - 11 = 9x + 6 \Rightarrow x = 17$
5. $\frac{1}{2}(6x - 8) - (x - 3) = 5 \Rightarrow (3x - 4) - x + 3 = 5 \Rightarrow 2x - 1 = 5 \Rightarrow x = 3$

Challenge (optional)

1. Expression: $12 \cdot 5 - 8$. Value: $60 - 8 = 52$. (\$52)

2. $-3 - 7 + 5 = -5^{\circ}\text{F}$

3. $-2(x - 4) + 3 = 17 \Rightarrow -2x + 11 = 17 \Rightarrow -2x = 6 \Rightarrow x = -3$

4. False. Correct rule: $-(a - b) = -a + b$.

A.2 Chapter 1 — Equations

A.3 Chapter 2 — Transformations

A.4 Chapter 3 — Angles and Triangles

A.5 Chapter 4 — Graphing and Writing Linear Equations

A.6 Chapter 5 — Systems of Linear Equations

A.7 Chapter 6 — Functions

A.8 Chapter 7 — Real Numbers and the Pythagorean Theorem

A.9 Chapter 8 — Volume and Similar Solids

A.10 Chapter 9 — Data Analysis and Displays

A.11 Chapter 10 — Exponents and Scientific Notation

Appendix B

Worked Examples

B.1 Chapter 0 — Absolute Foundations

B.1.1 0.1 Integers & Signs — Worked Examples

B.1.2 0.3 Distributive Property — Worked Examples

B.2 Chapter 1 — Equations

B.3 Chapter 2 — Transformations

B.4 Chapter 3 — Angles and Triangles

B.5 Chapter 4 — Graphing and Writing Linear Equations

B.6 Chapter 5 — Systems of Linear Equations

B.7 Chapter 6 — Functions

B.8 Chapter 7 — Real Numbers and the Pythagorean Theorem

B.9 Chapter 8 — Volume and Similar Solids

B.10 Chapter 9 — Data ⁹⁸Analysis and Displays

B.11 Chapter 10 — Fractions and Scientific Notation