0.1 Mixed Foundations Review

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

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

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. $5-3\big(2x-1\big)$

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

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

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

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. $\dfrac{x}{-6} = -5$

5. $2x - 5 = 11$

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

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

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

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

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

Part D — Multi-Step (All Skills Together)

Simplify first, then solve.

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

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

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

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

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: $-(a-b)=-a-b$.