Printable Algebra Rules Cheat Sheet: Operation Laws, Sign Rules, and Error-Check Practice

Original tasks 1, 2, 3 / complete keys

Task 1

Find and fix the mistake: $4 - (-3) = 1$.

Answer: $4 - (-3) = 4 + 3 = 7$.

Reason: Subtracting a negative number is equivalent to adding its opposite, so the operation becomes $4 + 3$, which equals 7. The original answer of 1 incorrectly treated the double negative as subtraction.

Check: Rewrite as $4 + 3$ and confirm on a number line: starting at 4 and moving 3 units right gives 7.

Task 2

Find and fix the mistake: $-(2x - 7) = -2x - 7$.

Answer: $-(2x - 7) = -2x + 7$.

Reason: The negative sign distributes to both terms. The first term becomes $-2x$, and the second term becomes $+7$ because subtracting a negative inside the parentheses reverses to addition when the outer negative is applied.

Check: Substitute $x = 0$: original gives $-(0 - 7) = 7$; corrected gives $-0 + 7 = 7$. The incorrect version gives -7, so the correction is confirmed.

Task 3

Find and fix the mistake: $(-5) \times (-2) = -10$.

Answer: $(-5) \times (-2) = 10$.

Reason: Two negative factors produce a positive product. The absolute values multiply to 10, and the even number of negative signs makes the result positive.

Check: Count the negative signs: two negatives give a positive. Verify with $5 \times 2 = 10$ and attach the positive sign.

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Original tasks 4 / complete keys

Task 4

Find and fix the mistake: $6 + 2 \times 3 = 24$.

Answer: $6 + 2 \times 3 = 6 + 6 = 12$.

Reason: Multiplication must be performed before addition. The product 2×3 equals 6, and then $6 + 6$ equals 12. The original answer incorrectly multiplied the sum $6 + 2$ by 3.

Check: Apply the order of operations: multiplication first, then addition. Confirm that $2 \times 3 = 6$ and $6 + 6 = 12$.

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Source rubric / reflection

- [ ] Correctly identifies the operation law or sign rule being applied.
- [ ] Applies the distributive law to every term inside parentheses, including signs.
- [ ] Maintains the correct order of operations throughout the simplification.
- [ ] Uses substitution with a small integer to verify the result.
- [ ] States the final simplified expression clearly with no sign errors.

Reflection: What did you check, what did you change, and what will you try next?