Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Quantities & Algebraic Expressions | Algebra 1 | 4-Topic Bundle

4-topic bundle | 384 problems | Four activity formats

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01 **Units, Conversions, and Defining Quantities**

View individual product and its full preview

02 **Reading and Translating Algebraic Expressions**

View individual product and its full preview

03 **Expression Evaluation and Properties of Operations**

View individual product and its full preview

04 **Distributive Property and Combining Like Terms**

View individual product and its full preview

In every topic

Answer Bank Challenge	24 tasks
Grid Rounds	24 tasks
Match & Move	24 cards
Error Analysis & Strategy	24 tasks
Quick Answer Key and Full Worked Solutions	included
Teacher / Parent Use Guide and Terms of Use	included

Product previews

The following preview pages show the cover, all four activity formats, and worked examples for each included resource, in the listed order.

32 PDFs and 4 README; 239 buyer PDF pages across the 4 products.

Preview pages are not included in the buyer page count. Check the list against resources you already own.

This is a fixed collection of the listed products. Purchase includes the existing individual resource files. To open a product's online preview, follow its title link and select View Preview.

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Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Units, Conversions, and Defining Quantities

Operations with Measurements and Unit Conversion | A1-U01-COMB-P07-P08

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for compatibility verdict with dimensional trace, coordinate value with axis units, defect list and repaired definition, definition with datum and sign meanings, equivalent measurement with cancellation and equivalent rate with two unit cancellations.

8 PDFs and a README; 77 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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Algebra 1

Units, Conversions, and Defining Quantities

Name: _____ **Date:** _____ **Class:** _____

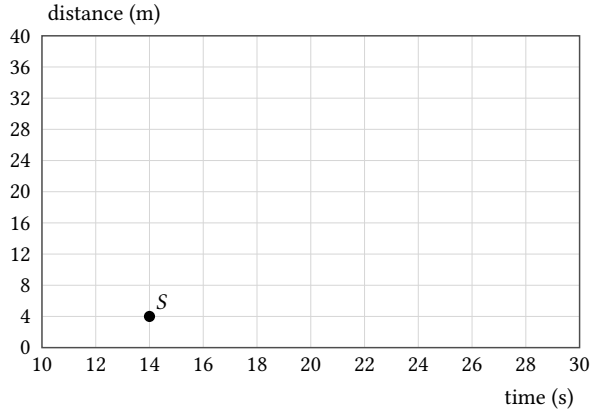
Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

One board is 6 ft 11 in long and another is 14 in long. Find their combined length in inches. Organize all quantities in one consistent unit system before calculating.

Quantity	Value	Unit
first piece feet	6	ft
first piece inches	11	in
second piece	14	in

Bank label: _____

A graph uses an x-axis starting at 10 s with 2 s per tick and a y-axis starting at 0 m with 4 m per tick. Point S is at tick indices $(2, 1)$. Report its coordinate pair with units.



Bank label: _____

Algebra 1

Units, Conversions, and Defining Quantities

Name: _____ **Date:** _____ **Class:** _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

There are exactly 5 identical items, each measured as 28.4 g to the nearest 0.1 g. A calculator gives 142.0 g. State an appropriately reported total and explain why the exact count does not add measurement precision.

The data are 105, 118, 131, 144 units. The table gives two axis proposals. Choose a proposal that shows every value and uses at least half of its available intervals from the smallest to largest value. Justify by computing each displayed range and the data span.

proposal	origin	units per tick	available intervals
A	0	20	8
B	100	5	10

In $T = rt + b$, the known units are T: $^\circ C$, r: $^\circ C/\text{min}$, t: min. Infer the required unit of b by reversing the dimensional operations. Build a numerator-denominator unit ledger and cancel known factors. Verify the result in the formula.

There are exactly 3 identical items, each measured as 26.3 g to the nearest 0.1 g. A calculator gives 78.9 g. State an appropriately reported total and explain why the exact count does not add measurement precision.

Algebra 1

Units, Conversions, and Defining Quantities

Name: _____ **Date:** _____ **Class:** _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: 24 in

Compare these legitimate variable choices: m = elapsed time in minutes; h = elapsed time in hours. State their relationship ($m = 60h$) and decide which choice is more direct for the stated focus "minutes." Do not construct or solve a full model.

Your response: _____

Incoming: Relationship: $m = 60h$. The m definition answers a question requesting minutes directly.

Compare these legitimate variable choices: u = liters used; r = liters remaining from an initial T liters. State their relationship ($r = T - u$) and decide which choice is more direct for the stated focus "remaining." Do not construct or solve a full model.

Your response: _____

Incoming: 420 min

Using 1 ft = 12 in, convert 2 ft to in. Write a ratio equal to 1 so that ft cancels, and check whether the new magnitude is sensible.

Your response: _____

Incoming: Let e be the elapsed time from first alarm to all-clear, measured in seconds.

A report asks for the distinct customers, not the number of purchases. Define the variable c operationally: name exactly what is counted or measured and include its unit. Clarify its scope so it cannot be confused with a nearby total, rate, object, or reference interval.

Your response: _____

Incoming: $\mathrm{kg/m^3}$

Material costs 4 USD/kg. What is the cost of 4 packages of 350 g each? Organize all quantities in one consistent unit system before calculating.

Quantity	Value	Unit
unit price	4	USD/kg
mass per package	350	g
packages	4	count

Your response: _____

Incoming: 0.158 m

Using 1 lb = 16 oz, convert 21 oz to lb. Write a ratio equal to 1 so that oz cancels, and check whether the new magnitude is sensible.

Your response: _____

Algebra 1

Units, Conversions, and Defining Quantities

Name: _____ **Date:** _____ **Class:** _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Audit this worked solution: $5\ \text{m}\left(\frac{100\,\text{cm}}{1\,\text{m}}\right)\left(\frac{100\,\text{cm}}{1\,\text{m}}\right) = 50000\ \text{cm}$. Identify the first invalid stage, if any, track the units, and give the corrected conclusion.

Choose the strategy that directly produces the required value and units, and justify the unit operations. Choice A: use $\left(\frac{1\,\text{km}}{1000\,\text{m}}\right)\ \left(3600\,\text{s}/(1\,\text{hr})\right)$. Choice B: use $\left(1\,\text{km}/(1000\,\text{m})\right)\left(1\,\text{hr}/(3600\,\text{s})\right)$. Convert $3\ \text{m/s}$ to $\frac{km}{hr}$. Use the supplied relations $1\ \text{km} = 1000\ \text{m}$ and $1\ \text{hr} = 3600\ \text{s}$, orienting one ratio for the numerator unit and one for the denominator unit. Show both cancellations. Explain why reversing either factor would leave an unwanted unit or create a reciprocal-rate error.

Audit this worked solution: Because $A = L^2$ has area units, it must be the correct area formula for every shape. Identify the first invalid stage, if any, track the units, and give the corrected conclusion.

Audit this worked solution: Convert $6\ \text{m/s}$ to $\frac{km}{hr}$: $6\left(\frac{1\,\text{km}}{1000\,\text{m}}\right) = \frac{3}{500}\ \text{km/hr}$. Identify the first invalid stage, if any, track the units, and give the corrected conclusion.

Units, Conversions, and Defining Quantities

Full Worked Solutions - excerpt

Worked example

Problem. Audit this worked solution: An axis starts at 0 and rises by 2.5 per tick; tick 6 is labeled 6. Identify the first invalid stage, if any, track the units, and give the corrected conclusion.

Answer. First invalid stage: axis reading. Correct conclusion: 15 units.

Explanation and check.

Multiply the tick index by 2.5.

Worked example

Problem. Diagnose the proposed definition "Let b be the bicycle." Identify the missing semantic component or components, then rewrite it as an operational variable definition.

Answer. Missing: quantity measured. Repair: Let b be the distance the bicycle travels, in kilometers.

Explanation and check.

A symbol must represent a measurable attribute, not the physical object.

Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Reading and Translating Algebraic Expressions

Reading and Translating Algebraic Expressions | A1-U01-COMB-P09-P10

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for contextual expression with unit rationale, correctly grouped two-stage expression, equivalent-description labels with structural reason, first error and corrected structural labels, first mismatch and repaired expression and marked subexpression role at named level.

8 PDFs and a README; 55 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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Algebra 1

Reading and Translating Algebraic Expressions

Name: _____ **Date:** _____ **Class:** _____

Answer each question and record the matching bank letter. Give exact values. Give the whole requested response, including any reasoning the question asks for.

In $\frac{7}{x+4} + 1$, treat the marked subexpression "$x + 4$" as one quantity. Describe its role in the whole expression at the requested level "path from marked group to the root" without expanding or evaluating. Compare its immediate role with its role after moving one level outward, and explain why both descriptions can be true. Bank label: _____	Construct one expression satisfying all requirements: outer operation is division; numerator is the two-term sum $-x + 5$; denominator is $2(y + 1)$; the quotient is one outer term. Then audit your expression by listing its outer signed terms. Equivalent answers are allowed; do not simplify by expanding or combining. Bank label: _____
At the outer additive level of $\frac{n+7}{13} - 6y + 2$, list the signed terms in order. Keep every product, quotient, or parenthesized factor intact; do not expand or combine anything. Bank label: _____	At the outer additive level of $-(y - 5) + 9y - 4$, list the signed terms in order. Keep every product, quotient, or parenthesized factor intact; do not expand or combine anything. Bank label: _____

Algebra 1

Reading and Translating Algebraic Expressions

Name: _____ **Date:** _____ **Class:** _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. Give the whole requested response, including any reasoning the question asks for.

In $(x + 3)^2 + y$, treat the marked subexpression "$x + 3$" as one quantity. Describe its role in the whole expression at the requested level "outermost operation" without expanding or evaluating.	Audit the annotation: In $-3(a + b)$, $-3a$ is one outer term and $-3b$ is another. Identify the first structural labeling error, correct all affected labels, and justify the correction using the relevant operation level.
Use the complete operation tree for $5(n + 3) + y$. Classify the outer components as additive terms or multiplicative/division operands, then name the factors inside one product if present. Base the labels on operations, not visual proximity.	Use the complete operation tree for $-(t + 2)$. Classify the outer components as additive terms or multiplicative/division operands, then name the factors inside one product if present. Base the labels on operations, not visual proximity.
In $(2x - y)^2 + 4$, treat the marked subexpression "$2x - y$" as one quantity. Describe its role in the whole expression at the requested level "immediate parent operation" without expanding or evaluating.	In $4^{n+1} - 2$, treat the marked subexpression "$n + 1$" as one quantity. Describe its role in the whole expression at the requested level "immediate parent operation" without expanding or evaluating.

Algebra 1

Reading and Translating Algebraic Expressions

Name: _____ **Date:** _____ **Class:** _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: $\frac{q}{17}$ Translate "divide 26 by z." Before writing the expression, identify the minuend/subtrahend or dividend/divisor in that order. Use z as the variable and do not rely on the left-to-right word order alone. Your response: _____	**Incoming:** $\frac{26}{z}$ Translate "m subtracted from 28." Before writing the expression, identify the minuend/subtrahend or dividend/divisor in that order. Use m as the variable and do not rely on the left-to-right word order alone. Your response: _____
Incoming: $23n$ Translate "the ratio of q to 17." Before writing the expression, identify the minuend/subtrahend or dividend/divisor in that order. Use q as the variable and do not rely on the left-to-right word order alone. Your response: _____	**Incoming:** $(n + 33)^2$ Translate "25 times the difference between t and 13" compositionally. Write the inner named sum, difference, product, or quotient first, then use it as one grouped operand of the outer operation. Do not expand or evaluate. Your response: _____
Incoming: terms: $+6(x + 11), -(5y - 1)$ Translate "subtract 25 from q." Before writing the expression, identify the minuend/subtrahend or dividend/divisor in that order. Use q as the variable and do not rely on the left-to-right word order alone. Your response: _____	**Incoming:** terms: $+4t, -7(y + 3), +1$ Construct one expression satisfying all requirements: exactly three outer terms; one term is $-2(x + y)$; one term has implicit coefficient $+1$ on z; constant is 0. Then audit your expression by listing its outer signed terms. Equivalent answers are allowed; do not simplify by expanding or combining. Your response: _____

Algebra 1

Reading and Translating Algebraic Expressions

Name: _____ **Date:** _____ **Class:** _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

The supplied model is $C = F + rn$, with definitions: C: total charge in USD; F: fixed fee in USD; r: usage price in USD/unit; n: number of usage units. Interpret F and rn in context, stating whether each is a separate contribution, a repeated-group factor, or a product and tracking its unit. Use the requested focus "grouped factor." Do not build or solve the model.

The supplied model is $T = k(a + b)$, with definitions: T: total items; k: number of identical groups; a: red items per group; b: blue items per group. Interpret $a + b$ and k in context, stating whether each is a separate contribution, a repeated-group factor, or a product and tracking its unit. Use the requested focus "selected outer term." Do not build or solve the model.

The supplied model is $R = S - uq$, with definitions: R: remaining material in meters; S: starting material in meters; u: meters used per piece; q: pieces made. Interpret S and uq in context, stating whether each is a separate contribution, a repeated-group factor, or a product and tracking its unit. Use the requested focus "selected product." Do not build or solve the model.

Audit the annotation: In $4(x + 2), x$ and 2 are the two outer terms. Identify the first structural labeling error, correct all affected labels, and justify the correction using the relevant operation level.

Reading and Translating Algebraic Expressions

Full Worked Solutions - excerpt

Worked example

Problem. Audit the proposed translation of "three times the sum of x and 2": $3x + 2$. Identify the first operator or operand-role mismatch and repair the expression while preserving every correct component.

Answer. $3(x + 2)$

Explanation and check.

The whole sum must be one factor.

Worked example

Problem. Audit the proposed translation of "five less than x": $5 - x$. Identify the first operator or operand-role mismatch and repair the expression while preserving every correct component.

Answer. $x - 5$

Explanation and check.

Less-than makes x the minuend and 5 the subtrahend.

Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Expression Evaluation and Properties of Operations

Expression Evaluation and Properties of Operations | A1-U01-COMB-P11-P12

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for comparison with structural explanation, counterexample and corrected rule, equivalent rewrite, value, and property explanation, exact value, exact value or insufficiency with witnesses and exact value with grouping shown.

8 PDFs and a README; 54 buyer pages.

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Algebra 1

Expression Evaluation and Properties of Operations

Name: _____ **Date:** _____ **Class:** _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

An answer may be used more than once.

Evaluate $x(x-1)+2x$ when $x=-5$. Replace every occurrence of x before simplifying.

Bank label: _____

Evaluate $-(x^3)+2x$ when $x=-3$. Show the substituted negative input in parentheses so the base of each power is clear.

Bank label: _____

Use the given assignments $x=0, y=0$ to evaluate $4(x+y)-3x$. Match every value to its symbol and preserve the grouping.

$4(x+y)-3x$

variable	value
x	0
y	0

Bank label: _____

Use the given assignments $x=0, y=2$ to evaluate $x(y-3)+3y$. Match every value to its symbol and preserve the grouping.

$x(y-3)+3y$

variable	value
x	0
y	2

Bank label: _____

Algebra 1

Expression Evaluation and Properties of Operations

Name: _____ **Date:** _____ **Class:** _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Use the given assignments $x = -2, y = 0$ to evaluate $x(y - 3) + 3y$. Match every value to its symbol and preserve the grouping.	Use the given assignments $x = 0, y = 0$ to evaluate $x(y - 5) + 5y$. Match every value to its symbol and preserve the grouping.
Evaluate $\frac{x+2}{x+7}$ at $x = -2$. Check the denominator in the original expression before simplifying; if it is zero, state why the value is undefined.	Evaluate $\frac{x+1}{x-(-2)}$ at $x = -2$. Check the denominator in the original expression before simplifying; if it is zero, state why the value is undefined.
Evaluate $\frac{x+3}{x-(0)}$ at $x = 0$. Check the denominator in the original expression before simplifying; if it is zero, state why the value is undefined.	Evaluate $\frac{x+5}{x-(1)}$ at $x = 1$. Check the denominator in the original expression before simplifying; if it is zero, state why the value is undefined.

Algebra 1

Expression Evaluation and Properties of Operations

Name: _____ **Date:** _____ **Class:** _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: 18 Evaluate $-(x^4) - (-x)^2$ when $x = -4$. Show the substituted negative input in parentheses so the base of each power is clear. Your response: _____	**Incoming:** -272 Use the given assignments $x = 1, y = 3$ to evaluate $2x + y$. Match every value to its symbol and preserve the grouping. Your response: _____
Incoming: -12 Evaluate $-(x^3) - (-x)^2$ when $x = -3$. Show the substituted negative input in parentheses so the base of each power is clear. Your response: _____	**Incoming:** 8 Complete $2(4 \cdot 8) =$ _____ using only the associative property of multiplication. Preserve every operand and make no additional simplification. Your response: _____
Incoming: -6 Evaluate $-(x^4) + 3x$ when $x = -4$. Show the substituted negative input in parentheses so the base of each power is clear. Your response: _____	**Incoming:** -3 Evaluate $4x + x - 6$ when $x = 1$. Replace every occurrence of x before simplifying. Your response: _____

Algebra 1

Expression Evaluation and Properties of Operations

Name: _____ **Date:** _____ **Class:** _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Choose and justify a method before solving (direct substitution, an organized value table, or an equivalent-form check). Then complete the task: Use the given assignments $x = -2, y = -2$ to evaluate $2(x + y) - x$. Match every value to its symbol and preserve the grouping.

$2(x + y) - x$

variable	value
x	-2
y	-2

Choose and justify a method before solving (direct substitution, an organized value table, or an equivalent-form check). Then complete the task: Use the given assignments $x = -3, y = 3, z = 0$ to evaluate $(x + 2y)(z - x)$. Match every value to its symbol and preserve the grouping.

$(x + 2y)(z - x)$

variable	value
x	-3
y	3
z	0

Expression Evaluation and Properties of Operations

Full Worked Solutions - excerpt

Worked example

Problem. Evaluate $2x + x - 1$ when $x = -6$. Replace every occurrence of x before simplifying.

Answer. -19

Explanation and check.

Replace both occurrences of x by -6: $2(-6) + (-6) - 1 = -19$.

Worked example

Problem. Evaluate $3x + x - 3$ when $x = 0$. Replace every occurrence of x before simplifying.

Answer. -3

Explanation and check.

Replace both occurrences of x by 0: $3(0) + (0) - 3 = -3$.

Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Distributive Property and Combining Like Terms

Distributive Property and Combining Like Terms | A1-U01-COMB-P13-P15

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for admissible witness and exact values, coefficient or inconsistency proof, collected expression, decomposition, distributed computation, exact value, equivalent form and verification and expanded and collected form.

8 PDFs and a README; 53 buyer pages.

The following pages use the same questions, given data, and notation as the final files. Question/card serial numbers and internal IDs are omitted in this preview only. Table values and matching responses are retained. Full answer keys are not included.

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Algebra 1

Distributive Property and Combining Like Terms

Name: _____ **Date:** _____ **Class:** _____

Answer each question and record the matching bank letter. Give exact values. A value without its unit is not a complete answer.

Audit the work "$(\frac{2}{3})(6x - 9) = 4x - 9$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Bank label: _____

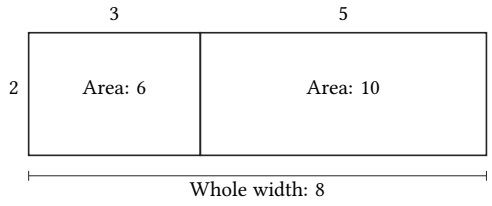
Compute $(25)(12)$ by decomposing one factor into a useful sum or difference and distributing. Show why your chosen decomposition reduces the work.

Bank label: _____

Complete or assess the distributive identity $3(\_\_\_\_\_x + 2) = 6x + 6$. Recover the missing component by matching corresponding products; if no value works, explain the conflicting requirements.

Bank label: _____

A rectangle has common height 2 and is partitioned into vertical strips with widths $3, 5$; the whole width is 8. Use the stated partition incidence to write the total area both as height times whole width and as the sum of strip areas. Explain why the expressions are equal.



Bank label: _____

Algebra 1

Distributive Property and Combining Like Terms

Name: _____ **Date:** _____ **Class:** _____

Answer each question and show your reasoning in the workspace. Give exact values rather than decimals unless the question supplies a decimal. A value without its unit is not a complete answer.

Compute (2)(22) by decomposing one factor into a useful sum or difference and distributing. Show why your chosen decomposition reduces the work.	Audit the work "$3(x + 5) = 3x + 5$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.
Audit the work "$-(x - 4) = -x - 4$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.	Audit the work "$2(x + 3) + 4(y - 1) = 2x + 6 + 4y - 1$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.
Audit the work "$-6x + 12 = -6(x + 2)$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.	Audit the work "$8x + 12 + 4y = 4(2x + 12 + y)$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Algebra 1

Distributive Property and Combining Like Terms

Name: _____ **Date:** _____ **Class:** _____

Begin at START. Answer the card, then find the matching final answer at the top of another card. Use the recording sheet for your reasoning. Visit each card once and continue to FINISH.

Incoming: no value of k Compute $(3)(9)$ by decomposing one factor into a useful sum or difference and distributing. Show why your chosen decomposition reduces the work. Your response: _____	**Incoming:** $3(10-1) = 30-3 = 27$ Compute $(4)(19)$ by decomposing one factor into a useful sum or difference and distributing. Show why your chosen decomposition reduces the work. Your response: _____
Incoming: 3 Complete or assess the distributive identity $k(x+2) = 3x+8$. Recover the missing component by matching corresponding products; if no value works, explain the conflicting requirements. Your response: _____	**Incoming:** $12n$ Combine $12t - 3t + 3t$. Factor out the shared variable part conceptually and add the signed coefficients; state explicitly if the group cancels to zero. Your response: _____
Incoming: 6 Complete or assess the distributive identity $\_\_\_\_(3x-1) = 6x-2$. Recover the missing component by matching corresponding products; if no value works, explain the conflicting requirements. Your response: _____	**Incoming:** $3y-6$ Expand $-2(x+2)$ completely by distributing each outer scalar to every signed term. Preserve independent groups and do not collect like terms. Your response: _____

Algebra 1

Distributive Property and Combining Like Terms

Name: _____ **Date:** _____ **Class:** _____

Evaluate the supplied statement or method. Say whether it is correct, repair it if it is not, and verify the result exactly. Not every prompt contains an error.

Audit the work "$2(a+b-3)=2a+b-6$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Audit the work "$-4(y+2)=-4y+8$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Audit the work "$6x+10=3(2x+5)$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Audit the simplification "$2x+5x^2=7x^2$." Identify the first invalid grouping or state that it is valid, compare complete variable parts, and give the corrected result with a coefficient-based explanation.

Distributive Property and Combining Like Terms

Full Worked Solutions - excerpt

Worked example

Problem. Audit the work "$(\frac{2}{3})(6x-9)=4x-9$." Identify the first missing or invalid factor-term pairing, correct the expansion or factorization, and verify the correction at the simple value stated or at a value you choose.

Answer. The scalar $\frac{2}{3}$ was not applied to -9. Correct: $4x-6$; at $x=0$, both correct forms equal -6.

Explanation and check.

Check every factor-term pairing. The scalar $\frac{2}{3}$ was not applied to -9. Correct: $4x-6$; at $x=0$, both correct forms equal -6.

Worked example

Problem. Compute $(25)(12)$ by decomposing one factor into a useful sum or difference and distributing. Show why your chosen decomposition reduces the work.

Answer. $25(10+2)=250+50=300$

Explanation and check.

Use the displayed benchmark split and distribute to get easier partial products:

$25(10+2)=250+50=300$