

Algebra 1  
Equations with the Distributive Property

Equations with the Distributive Property | A1-U02-P05

96 problems · Four activity formats

|    |                            |              |
|----|----------------------------|--------------|
| 01 | Answer Bank Challenge      | 24 tasks     |
| 02 | Grid Rounds                | 24 tasks     |
| 03 | Match & Move               | 24 cards     |
| 04 | Error Analysis & Strategy  | 24 tasks     |
| 05 | Quick Answer Key           | 96 answers   |
| 06 | Full Worked Solutions      | 96 solutions |
| 07 | Teacher / Parent Use Guide | included     |
| 08 | Terms of Use & License     | included     |

**Topic focus**  
Across 96 tasks this topic asks for distribution, combined coefficient, exact solution, and check, equivalence classification, operation validity, and proof, first error, corrected equation, solution, and original-form check, missing value or feasibility classification with verification, recovered data or inconsistency proof with term matching and strategy justification, exact solution, and check.

**8 PDFs and a README; 49 buyer pages.**

## Algebra 1

Equations with the  
Distributive Property

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.

|                                                                                                                                                                                                                        |                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The target solution <math>x = 4</math> must satisfy <math>3(2x + b) - x = 35</math>. Recover the missing inside constant <math>b</math>, classify uniqueness, and verify.</p> <p>_____</p> <p>Bank label: _____</p> | <p>Substitute <math>x = -3</math> into the incomplete grouped equation <math>m(2x + 4) + x = 1</math>. Determine <math>m</math> and check the completed original form.</p> <p>_____</p> <p>Bank label: _____</p> |
| <p>Choose <math>k</math> so that <math>x = 5</math> satisfies <math>2(kx + 3) - 4x = 16</math>. Keep the group intact during substitution, then test the result.</p> <p>_____</p> <p>Bank label: _____</p>             | <p>Expand the grouped side of <math>-3(4x + 6) - 5x = 101</math>, solve the resulting linear equation, and verify in the unexpanded equation.</p> <p>_____</p> <p>Bank label: _____</p>                          |
| <p>Solve <math>5(4x - 9) - 8x = -21</math>. Distribute across every complete group before combining the exposed variable terms, then check the original form.</p> <p>_____</p> <p>Bank label: _____</p>                | <p>Expand the grouped side of <math>-7(2x + 1) + 5x = -43</math>, solve the resulting linear equation, and verify in the unexpanded equation.</p> <p>_____</p> <p>Bank label: _____</p>                          |
| <p>In <math>6(3x - 4) - 11x = -45</math>, the grouped variable contribution interacts with an outside variable term. Expose that interaction and solve exactly.</p> <p>_____</p> <p>Bank label: _____</p>              | <p>Track every sign while solving <math>4(-2x + 7) + 5x = 46</math>; state the net coefficient after distribution and confirm the answer in the original groups.</p> <p>_____</p> <p>Bank label: _____</p>       |

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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.

|                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Determine <math>x</math> in <math>2x - 3(4x - 7) = 1</math>. Show the distribution step and the combined coefficient before isolating <math>x</math>.</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p>                                                               | <p>For <math>-4(3x - 2) = 68</math>, decide whether expansion is useful or whole-group isolation is cleaner. Support the choice with a complete solution and check.</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p>                                            |
| <p>Check the stated algebraic move from <math>5(-x + 7) + 2x = 17</math> to <math>-10x + 70 + 4x = 34</math>. Decide whether one common nonzero operation reaches every term and whether the equations are equivalent.</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p> | <p>Analyze the structure of <math>5(-x + 7) = 5</math>. Explain how the placement of every variable term controls the choice between distribution and group isolation, then solve.</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p>                             |
| <p>Compare the original grouped equation <math>-2(-3x + 4) - 5x = 0</math> with the candidate intermediate <math>6x - 8 - 5x = 0</math>. Are they equivalent, and does full distribution justify the displayed line?</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p>   | <p>The template <math>-6(x + b) + 4x = 30</math> is said to produce the expanded intermediate <math>-6x + 48 + 4x = 30</math>. Recover inside constant <math>b</math>, reconstruct the original, and solve it.</p><br><br><br><br><br><br><br><br><br><br><p>_____</p> <p>_____</p> |

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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.

|                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Incoming:</b> <math>\frac{11}{4}</math></p> <p>Substitute <math>x = -5</math> into the incomplete grouped equation <math>m(\frac{3}{2}x - \frac{7}{3}) + (\frac{4}{5})x = -\frac{209}{8}</math>. Determine <math>m</math> and check the completed original form.</p> <p>Your response: _____</p> | <p><b>Incoming:</b> <math>\frac{9}{4}</math></p> <p>Track every sign while solving <math>5(-3x + 4) + 2x = 33</math>; state the net coefficient after distribution and confirm the answer in the original groups.</p> <p>Your response: _____</p>                                                       |
| <p><b>Incoming:</b> 9</p> <p>The target solution <math>x = 7</math> must satisfy <math>5(-2x + b) + 3x = -\frac{141}{4}</math>. Recover the missing inside constant <math>b</math>, classify uniqueness, and verify.</p> <p>Your response: _____</p>                                                   | <p><b>Incoming:</b> 4</p> <p>Complete the grouped equation <math>(\frac{7}{4})(\frac{2}{3}x + b) - (\frac{5}{6})x = -\frac{493}{180}</math> for the prescribed solution <math>x = -\frac{9}{5}</math>. Explain why the missing data are or are not uniquely determined.</p> <p>Your response: _____</p> |
| <p><b>Incoming:</b> 1</p> <p>In <math>4(3x + 2) - 7x = -22</math>, the grouped variable contribution interacts with an outside variable term. Expose that interaction and solve exactly.</p> <p>Your response: _____</p>                                                                               | <p><b>Incoming:</b> <math>-\frac{4}{7}</math></p> <p>In <math>4(-x + 6) + 3x = 19</math>, the grouped variable contribution interacts with an outside variable term. Expose that interaction and solve exactly.</p> <p>Your response: _____</p>                                                         |

## Algebra 1

# Equations with the Distributive Property

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 work for  $3(2x + 5) - x = 35$ :  $6x + 5 - x = 35$ ;  $5x = 30$ ;  $x = 6$ . Identify the first incorrect distributed term, repair the equation, and verify the solution.

Track the signed distribution in  $-2(3x - 4) + x = 23$ . The proposed work is  $-6x - 8 + x = 23$ ;  $-5x = 31$ ;  $x = -\frac{31}{5}$ . Diagnose its first sign error and give the checked value of  $x$ .

Audit this work for  $4(6 - x) + 3x = 19$ :  $24 - x + 3x = 19$ ;  $2x = -5$ ;  $x = -\frac{5}{2}$ . Identify the first incorrect distributed term, repair the equation, and verify the solution.

Review the constant contribution in the attempted solution of  $5(2x - 3) - 4x = -27$ :  $10x - 3 - 4x = -27$ ;  $6x = -24$ ;  $x = -4$ . Locate the distribution error and solve correctly.

## Equations with the Distributive Property

### Full Worked Solutions - excerpt

#### Worked example

**Problem.** The target solution  $x = 4$  must satisfy  $3(2x + b) - x = 35$ . Recover the missing inside constant  $b$ , classify uniqueness, and verify.

**Answer.** 5

#### Explanation and check.

Replace  $x$  by 4 while retaining the group. After substituting the target, the remaining nonzero coefficient on  $b$  determines  $b = 5$  uniquely. Rechecking the completed group at the target confirms the unique result.

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#### Worked example

**Problem.** Substitute  $x = -3$  into the incomplete grouped equation  $m(2x + 4) + x = 1$ . Determine  $m$  and check the completed original form.

**Answer.**  $-2$

#### Explanation and check.

At  $x = -3$ , first evaluate the known inside quantity and the outside  $x$ -term. After substituting the target, the remaining nonzero coefficient on  $m$  determines  $m = -2$  uniquely. A direct substitution check confirms the recovered factor condition.