Sets & Steps
Math Practice & Worked Solutions

Algebra 1

Converting Forms of Linear Equations

Converting Forms of Linear Equations | A1-U05-P10

96 problems · Four activity formats

Topic focus

Across 96 tasks this topic asks for an exact equation or a justified equivalence conclusion.

8 PDFs and a README; 48 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

Converting Forms of Linear Equations

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.

Do $y + 1 = \frac{1}{2}(x - 6)$ and $y = \frac{1}{2}x - 4$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient. Bank label: _____	Clear the fractional coefficient in $y = -\frac{3}{7}x + 4$ and report the primitive integer standard equation. Bank label: _____
Do $4x - 2y = 8$ and $2x$-$y = 4$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient. Bank label: _____	Expand $y + 5 = -\frac{7}{4}(x + 4)$ and simplify the anchor contribution before giving $y = mx + b$. Bank label: _____
Do $2x + 3y = 12$ and $y = -\frac{2}{3}x + 4$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient. Bank label: _____	Clear the fractional coefficient in $y = -\frac{5}{3}x + 8$ and report the primitive integer standard equation. Bank label: _____
Do $y - 5 = 2(x - 1)$ and $y = 2x + 3$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient. Bank label: _____	Expand $y - 6 = \frac{3}{5}(x + 5)$ and simplify the anchor contribution before giving $y = mx + b$. Bank label: _____

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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.

Rewrite $y + 6 = \frac{5}{2}(x + 4)$ in slope-intercept form and handle both anchor signs explicitly.	The line is given by $4x + 7y = 280$. You need to interpret the two per-item weights in a fixed-total constraint. Which form—slope-intercept, point-slope, or standard—best organizes this work, and why?
For the known line $y = 2x + 3$, Use the y-intercept as the anchor. Verify the point and write the corresponding point-slope equation.	The line is given by $3x + 2y = 12$. You need to read the slope and y-intercept before graphing. Which form—slope-intercept, point-slope, or standard—best organizes this work, and why?
Change $y + 5 = -\frac{7}{2}(x - 2)$ to $y = mx + b$ without replacing any fraction by a decimal.	Do $-6x + 9y = 15$ and $2x - 3y = 5$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient.

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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: From $6x + 3y = -9$: $y = -2x - 3$.

For the known line $3x$-$y = 6$, Use the point on the line whose x-coordinate is -1. Verify the point and write the corresponding point-slope equation.

Your response: _____

Incoming: From $3x$-$y = 6$, use $(-1, -9)$: $y + 9 = 3(x + 1)$.

Convert $y + 9 = 0(x - 8)$ to slope-intercept form and identify what the zero multiplier does.

Your response: _____

Incoming: From y = $-3x + 5$: $3x + y = 5$.

Convert $6x + 3y = -9$ to $y = mx + b$ and simplify both resulting coefficients.

Your response: _____

Incoming: From $-5y = 15$: $y = 0x - 3$.

Clear the fractional coefficient in $y = \frac{3}{4}x - 2$ and report the primitive integer standard equation.

Your response: _____

Incoming: From $5x + 2y = 10$, use $(0, 5)$: $y - 5 = -\frac{5}{2}(x)$.

Rewrite $9x - 6y = 18$ as $y = mx + b$, tracking the sign introduced when y is isolated.

Your response: _____

Incoming: From $y - 3 = 2(x - 1)$: $y = 2x + 1$.

Convert $4x + 2y = 10$ to $y = mx + b$ and simplify both resulting coefficients.

Your response: _____

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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.

A student converts $2x + 3y = 12$: $3y = -2x + 12$, then $y = -\frac{2}{3}x + 12$. Identify the first invalid step and repair the result.

A student claims $4x = 20$ becomes $y = 4x - 20$ after solving for y. Identify the structural mistake.

A student uses $(2, 5)$ to rewrite $y = 2x + 3$ as $y - 5 = 2(x - 2)$. Is the conversion valid? Diagnose it exactly.

A student changes $y + 4 = 3(x + 2)$ to $y = 3x + 10$. Diagnose the constant error and give the equivalent slope-intercept form.

Converting Forms of Linear Equations

Full Worked Solutions - excerpt

Worked example

Problem. Do $y + 1 = \frac{1}{2}(x - 6)$ and $y = \frac{1}{2}x - 4$ describe the same entire line? Justify by a reversible conversion or by comparing every scaled coefficient.

Answer. $y + 1 = \frac{1}{2}(x - 6)$ versus $y = \frac{1}{2}x - 4$: the same line; expansion combines -3 and -1.

Explanation and check.

Put both equations in one form and compare the full solution sets. Since expansion combines -3 and -1, they are the same line.

Worked example

Problem. Clear the fractional coefficient in $y = -\frac{3}{7}x + 4$ and report the primitive integer standard equation.

Answer. From y = $-\frac{3}{7}x + 4$: $3x + 7y = 28$.

Explanation and check.

Move the x-term to the left and scale the whole equation together; primitive sign normalization gives $3x + 7y = 28$.