Algebra 1

Name KEY ID: 1

ALG.b

Date _____ Period ____

ALG.b.1

Solve AND CHECK one-step linear equations. Clearly show EACH STEP. Circle your answer.

1) $17 + x = 15$

$-17 \quad -17$

$x = -2$

Show this step

2) $-11 = x - 2$

$+2 \quad +2$

$x = -9$

Circle solution

Remember to show work going down.

C: $17 + (-2) = 15$

$15 = 15$ ✓

Check solution in the original EQUATION

C: $-11 = -9 - 2$

$-11 = -11$ ✓

Label Check: with "C"

3) $\frac{x}{17} = -10$

4) $-16x = -64$

(3) $\left(\frac{17}{1}\right)\left(\frac{x}{17}\right) = -10\left(\frac{17}{1}\right)$

$x = -170$

C: $\frac{-170}{17} = -10$

$-10 = -10$ ✓

(4) $\frac{-16x}{-16} = \frac{-64}{-16}$

$x = 4$

C: $-16(4) = -64$

$-64 = -64$ ✓

Algebra 1 Name KEY ID: 1

ALG.b Date _____ Period ____

ALG.b.2

Solve AND CHECK 2-step linear equations. Clearly show EACH STEP. Circle your answer.

1) $5r + 9 = 29$

$-9 \quad -9$

$\frac{5R}{5} = \frac{20}{5}$

$\boxed{R = 4}$

C: $5(4) + 9 = 29$

$29 = 29$ ✓

2) $\frac{n}{2} - 10 = -4$

$+10 \quad +10$

$\frac{2}{1}\left(\frac{N}{2}\right) = 6 \cdot 2$

$\boxed{N = 12}$

C: $\frac{12}{2} - 10 = -4$

$6 - 10 = -4$

$-4 = -4$ ✓

optional step

3) $-64 = -4 - 4x$

$+4 \quad +4$

$\frac{-60}{-4} = \frac{+4x}{+4}$

$\boxed{X = 15}$

C: $-64 = -4 - 4(15)$

$-64 = -4 - 60$

$-64 = -64$ ✓

4) $-1 = \frac{x}{2} - 5$

$+5 \quad +5$

$2 \cdot 4 = \frac{x}{2} \cdot 2$

$\boxed{X = 8}$

C: $-1 = \frac{8}{2} - 5$

$-1 = 4 - 5$

$-1 = -1$ ✓

To solve 2-step EQUATIONS

(Green) STEP 1 UNDO ADDITION AND SUBTRACTION.

(Purple) STEP 2 UNDO MULTIPLICATION AND DIVISION.

(blue) STEP 3 Check solution IN the original EQUATION

Algebra 1

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ALG.b

Date _____ Period ____

ALG.b.3

Solve AND CHECK complex linear equations with variables on both sides, demonstrating the ability to use the distributive property. Clearly show EACH STEP. Circle your answer.

1) $-5x + 6 = 14 - 3x$

$+5x \quad +5x$

$6 = 2x + 14$

$-14 \quad -14$

$\frac{-8}{2} = \frac{2x}{2}$

$\boxed{x = -4}$

C: $-5(-4) + 6 = 14 - 3(-4)$

$26 = 26$ ✓

2) $-4 + 1 - 7x - 3 = -4x - 6x$

$-7x - 6 = -10x$

$+7x \quad +7x$

$\frac{-6}{-3} = \frac{-3x}{-3}$

$\boxed{x = 2}$

C: $-4 + 1 - 7(2) - 3 = -4(2) - 6(2)$

$-20 = -20$ ✓

3) $-5 - 2x = 5(2x - 1)$

$-2x - 5 = 10x - 5$

$+2x \quad +2x$

$-5 = 12x - 5$

$+5 \quad +5$

$\frac{0}{12} = \frac{12x}{12}$

$\boxed{x = 0}$

C: $-5 - 2(0) = 5[2(0) - 1]$

$-5 = -5$ ✓

4) $3 - 6(7x + 4) = x + 22$

$3 - 42x - 24 = x + 22$

$-42x - 21 = x + 22$

$+42x \quad +42x$

$-21 = 43x + 22$

$-22 \quad -22$

$\frac{-43}{43} = \frac{43x}{43}$

$\boxed{x = -1}$

C: $3 - 6(7(-1) + 4) = -1 + 22$

$21 = 21$ ✓

STEPS: ① Simplify both sides (GREEN)

② GET VARIABLE ON ONE side (red)

③ Solve 2-STEP EQUATION

ⓐ UNDO +, − (blue)

ⓑ UNDO ×, ÷ (purple)

④ Check Solution IN THE ORIGINAL EQUATION

Algebra 1 Name KEY ID: 1

ALG.b Date _____ Period ____

ALG.b.4

Solve literal equations with three or more variables, by isolating an indicated variable. Clearly show EACH STEP. Circle your answer.

1) $z = 3b + 24a$, for a

$-3b \quad -3b$

$\frac{24a}{24} = \frac{z - 3b}{24}$

$a = \frac{z - 3b}{24}$

2) $-3 - 2x = -4r - d$, for x

$+3 \quad +3$

$\frac{-2x}{-2} = \frac{-4R - D + 3}{-2}$

$x = \frac{-D - 4R + 3}{-2}$

OR

$x = \frac{D + 4R - 3}{2}$

3) $4a = \frac{w + 4v}{b}$, for a

$\frac{1}{4}\left(\frac{4a}{1}\right) = \left(\frac{w + 4v}{b}\right) \cdot \frac{1}{4}$

$A = \frac{4V + W}{4B}$

ORDER VARIABLE TERMS IN ABC ORDER!

Isolate "Y". (these are special equations in slope-intercept form)

4) $-15 = -3x - 5y$

$+3x \quad +3x$

$\frac{-5y}{-5} = \frac{3x - 15}{-5}$

$y = -\frac{3}{5}x + 3$

5) $-2y - 8x + 10 = 0$

$+8x \quad +8x$

$-2y + 10 = 8x$

$-10 \quad -10$

$\frac{-2y}{-2} = \frac{8x - 10}{-2}$

$y = -4x + 5$

SLOPE INTERCEPT FORM:

$y = mx + b$; m+b are numbers