

Solving linear equations and inequalities

Student Activity Sheet 3; use with *Exploring* “More solving linear equations”

1. Justify each step in the solution of the equation $3a + 12 = 5a + 7$.

$3a + 12 + (-3a) = 5a + 7 + (-3a)$	
$3a + (-3a) + 12 = 5a + (-3a) + 7$	
$[3a + (-3a)] + 12 = [5a + (-3a)] + 7$	
$0 + 12 = [5a + (-3a)] + 7$	
$0 + 12 = [5 + (-3)]a + 7$	
$0 + 12 = 2a + 7$	
$12 = 2a + 7$	

2. Finish solving the equation in question 1.

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- [illegible]

4. Use algebraic operations to solve the equation $8 - 3y = 7y - 2 - 5y$. Then check your solution using a table and a graph.

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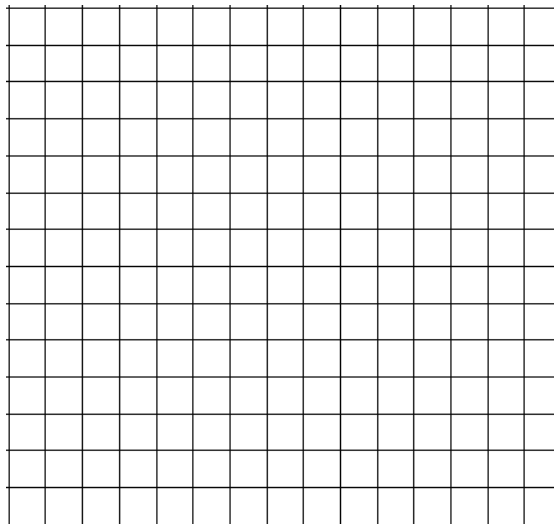
5. Solve the equation $4(k - 3) + 7 = 2k - (k + 8)$, and check your work using a table and a graph.

6. Solve the equation $\frac{b}{3} + 5 = \frac{3}{2}b + \frac{1}{3}$, and check your work.

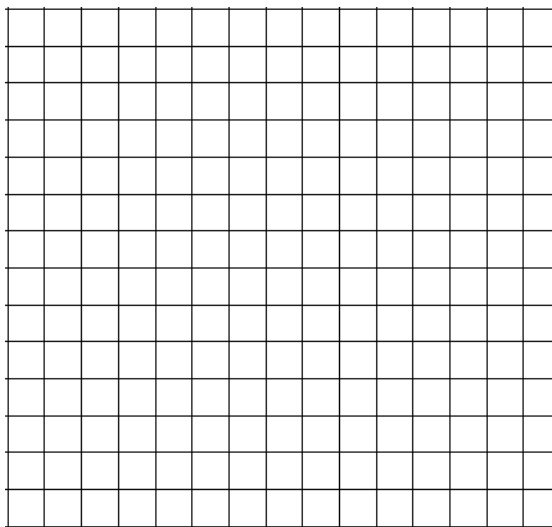
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7. Solve the equation $x + 2 = x - 5$ using algebraic operations. Check your work by graphing.



8. Solve the equation $x + 2 = x + 2$ using algebraic operations. Check your work by graphing.



9. Use algebraic operations to solve the equation $C = 2\pi r$ for r .

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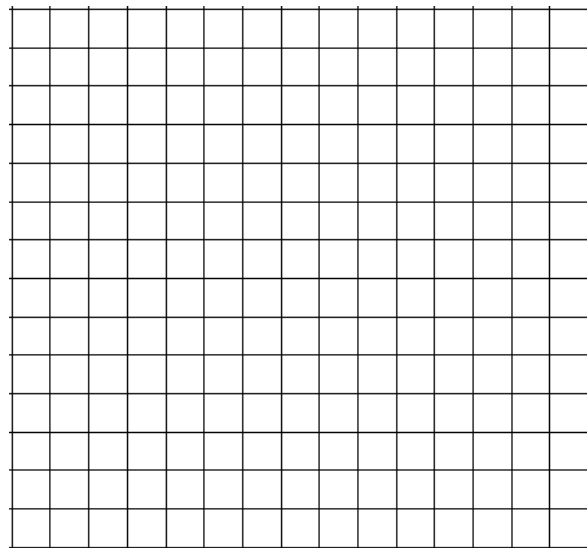
10. The equation $25x - 5y = 30$ is in the standard form for the equation of a line. Transform the equation to slope-intercept form.

11. **REINFORCE** Solve $5x - 7 = 5 - x$ using algebraic operations. Check your solution using a table and explain how you used the table to check your solution.

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12. **REINFORCE** Solve $-2x + 4 = 7$ using algebraic operations and then check your solution by graphing. Sketch the graph you make, and explain how you used it to check your solution.



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13. **REINFORCE** Suppose a car rental company charges \$24.95 per day plus 15 cents per mile for each mile you drive.
- Write a function rule that models the relationship between number of miles driven and total rental cost per day.
 - Write an equation you could use to find how many miles you drove if the total rental charge for one day was \$42.50.
 - Solve the equation you wrote in part b using algebraic operations, and verify your solution using either a table or a graph.