Name Date

Solving addition and subtraction equations

Integer Exploration

To find a solution to an equation, the equation must be solved. To solve addition and subtraction equations you must isolate the variable. Simply subtract if it is an addition problem and add if it is a subtraction problem to get the given variable by itself. Remember the following two properties of equality:

1. If the same number is subtracted from each side of an equation, the two sides remain equal.

   Solve $r + 12 = 67$
   $r + 12 - 12 = 67 - 12$ Subtract 12 from each side of equation.
   $r = 55$ Solve for r.

2. If the same number is added to each side of an equation, the two sides remain equal.

   Solve $x - 16 = 32$
   $x - 16 + 16 = 32 + 16$ Add 16 to each side of equation.
   $x = 48$ Solve for x.

Note: It is always a good idea to check each solution by putting it back into the original equation and making sure it creates a true sentence.

State the operation to be used to solve each equation.

1. $x + 7 = 12$ **2.** $b - 14 = 51$ **3.** $24 = h + 3$

4. $6 + a = 15$ **5.** $36 = d - 13$ **6.** $21 + y = 15$

Solve each equation and check your solution.

7. $n + 10 = 14$ **8.** $x - 28 = 72$

9. $11 = x - 1$ **10.** $-600 = c - (-400)$

11. $y - 8 = 8$ **12.** $64 + h = 36$

13. $-13 = z + 7$ **14.** $a - 15 = -21$

15. Write an equation whose solution is represented by the number line.