

1.4: Write Equations and Inequalities

“I WILL ...

Translate Verbal Sentences into Equations and Inequalities.”

I. Inequality Steps

- A.  $X$  typically comes first or is in the middle of the compound
- B. \_\_\_\_ represents greater than; more than
- C. \_\_\_\_ represents greater than or equal to; at least; no less than
- D. \_\_\_\_ represents less than; fewer than
- E. \_\_\_\_ represents less than or equal to; at most; or no more than
- F. Don't forget to **label**

II. Model Problems

<p>Ex 1: The difference of a number <math>x</math> and 11 is equal to 35. Write the equation and solve.</p>	<p>Ex 2: The sum of 12 and the quantity 8 times a number <math>k</math> is equal to 48. Write the equation and solve.</p>	<p>Your Turn: The product of 9 and the quantity 5 more than a number <math>x</math> is 18. Write the equation and solve.</p>
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<p>Ex 3: Little Suzy pays \$0.05 for every text message she sends. Last month, her bill for text messaging was \$25. Write an equation that represents how many text messages did Little Suzy send last month?</p>	<p>Your Turn: Little Johnny has a job at Taco Bell. He puts \$25 into his savings account every week. If he had \$75 in the account before he began working, write an equation that could be used to determine how many weeks, <math>w</math>, it would take him to have \$500 in his account?</p>	
<p>Ex 4: Check whether 4 is a solution to <math>2x + 5 &gt; 12</math>.</p>	<p>Ex 5: Check whether 3 is a solution to <math>2x + 5 &gt; 12</math>.</p>	<p>Your Turn: Check whether 3 is a solution to <math>\frac{k}{5} + 9 \geq 10</math></p>

<p>Ex 6: Write an inequality of the quotient of a number <math>x</math> and 12 is fewer than 30 and solve.</p>	<p>Ex 7: This season, Little Bobby has 125 at-bats in baseball. By the end of the season, he wants to have at least 140 at-bats. How many more at-bats does he need to reach her goal? Write the equation and solve.</p>	<p>Your Turn: Little Johnny's older brother works at American Eagle and earns \$275 per week plus a 4% commission. He desperately wants a new stereo for his car that costs \$395. Not including taxes, what is the minimum he would have to sell to earn enough money for the stereo?</p>
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Assignment: Page 24: 3-8 all, 12-16 all, 18-28 even, 40; 3-8: Write and SOLVE the equation/inequality

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**WRITING OPEN SENTENCES** Write an equation or an inequality.

3. The sum of 42 and a number  $n$  is equal to 51.
4. The difference of a number  $z$  and 11 is equal to 35.
5. The difference of 9 and the quotient of a number  $t$  and 6 is 5.
6. The sum of 12 and the quantity 8 times a number  $k$  is equal to 48.
7. The product of 9 and the quantity 5 more than a number  $t$  is less than 6.
8. The product of 4 and a number  $w$  is at most 51.

**CHECK POSSIBLE SOLUTIONS** Check whether the given number is a solution of the equation or inequality.

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|---------------------------------|--------------------------------|------------------------------------|
| 17. $x + 9 = 17$ ; 8            | 18. $9 + 4y = 17$ ; 1          | 19. $6f - 7 = 29$ ; 5              |
| 20. $\frac{k}{5} + 9 = 11$ ; 10 | 21. $\frac{r}{3} - 4 = 4$ ; 12 | 22. $\frac{x-5}{3} \geq 2$ ; 8; 11 |
| 23. $15 - 4y > 6$ ; 2           | 24. $y - 3.5 < 6$ ; 9          | 25. $2 + 3x \leq 8$ ; 2            |
| 26. $2p - 1 \geq 7$ ; 3         | 27. $4z - 5 < 3$ ; 2           | 28. $3z + 7 > 20$ ; 4              |

40. **COMPACT DISCS** You buy a storage rack that holds 40 CDs. You have 27 CDs. Write an inequality that describes how many more CDs you can buy and still have no more CDs than the rack can hold. You buy 15 CDs. Will they all still fit?