

1.4: Write Equations and Inequalities

Goals: *Translate verbal sentences into equations or inequalities

*Decide if a given value is a solution to an equation or inequality

Open sentence:

Equation:

Inequality:

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Translate the following phrases into equations or inequalities:

Ex: The difference of twice a number k and 8 is 12

Ex: The product of 6 and a number is at least 24

Ex: The quotient of a number p and 12 is at least 30

Ex: The sum of twice a number r and 3 is 11

Ex: The quotient of a number and 2 is at most 16

Ex: Your math grade, g , needs to be at least a 75

Combining inequalities:

Ex: x is greater than 3 and less than 9

Ex: A number y is no less than 5 and no more than 13

Ex: A number q is at least 5 and less than 17

Solution (of an equation or inequality):

Check whether 3 is a solution to the equation or inequality. Yes or No.

Ex: $8 - 2x = 2$

Ex: $4x - 5 = 6$

Ex: $2z + 5 > 12$

Ex: $5 + 3n \leq 20$

Check whether 5 is a solution to the equation or inequality. Yes or No.

Ex: $24 - 3d = 9$

Ex: $3x + 4 = 18$

Ex: $2w - 7 \leq 3$

Ex: $4 + 3p > 19$

Check whether the given number is a solution: (the number given comes after the semi-colon)

Ex: $9 - x = 4; 5$

Ex: $b + 5 < 15; 7$

Ex: $2n + 3 \geq 21; 9$

Ex: The last time you and 3 friends went to a mountain bike park, you had a coupon for \$10 off the total purchase and paid \$17 for 4 tickets. What is the regular price for the 4 tickets? What is the regular price of 1 ticket?

Ex: A basketball player scored 351 points last year. There are 18 games in the season.

- a. Write an inequality to represent the situation if the player's goal is to beat last year's total. (Be sure to identify a variable)
- b. Will an average of 20 points per game be enough to beat last year's total?

Ex: Tyler would like to make no less than \$610 selling coffee mugs online. He has made 28 mugs.

- a. Write an inequality to represent this situation.
- b. If he sells all 28 mugs for \$22 each, will he achieve his goal?