

Algebra - Equations and Inequalities

Name: _____

Date: _____

Concepts

- Representing a Solution Set
 - Solving Equations and Inequalities
 - Translating a Statement Into an Equation or an Inequality
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Representing a Solution Set

1. A food truck's freezer is working properly as long as its temperature t , in degrees Celsius, satisfies $t \leq -3$.
- Describe the solution set in words.
 - Draw a number line from -8 to 2 and shade the solution set on it. Use a filled dot at -3 to show that -3 belongs to the set.
 - The thermometer read -2.5°C on Monday, -3°C on Tuesday and -6°C on Wednesday. On which days was the freezer working properly?

Solving Equations and Inequalities

2. Solve each of the following. At every step, state which operation you are undoing.

a) $4x + 9 = 41$

b) $\frac{n}{3} - 5 = 7$

c) $2m + 13 \leq 27$, where m is a whole number. Give every value of m that works.

Translating a Statement Into an Equation or an Inequality

3. For each statement, choose a letter for the unknown quantity, say clearly what it represents, and translate the statement into an equation or an inequality. Do not solve, except where part e) asks you to.

a) A bubble-tea shop sells every large cup at \$6. Inès spent \$42 on large cups.

b) A school bus may carry no more than 48 passengers.

c) Five more than triple a number gives 26.

d) After paying \$15 for a movie ticket, Théo has less than \$20 left from his savings.

e) Solve the equation you wrote in part c).

Synthesis — drawing on several sheets in this topic

4. A community centre rents its gym for a fixed booking fee of \$25, plus \$18 for each hour. A hockey club has \$160 to spend and books the gym for a whole number of hours h , with h at least 1.

- a) Translate “the total cost must not go over \$160” into an inequality in h .
- b) Solve your inequality.
- c) List every number of hours the club can book, and explain how you would show this solution set on a number line.

Want the harder problems and the worked solutions?

The *Challenge Problems* set and the *Answer Keys* for Algebra - Equations and Inequalities — with the reasoning written out in full — are available at tutorinmontreal.ca.