

An inequality is a mathematical sentence that uses an inequality symbol to compare the values of two expressions. You can use a number line to visually represent the values that satisfy an inequality.

## **PROBLEM 1: WRITING INEQUALITIES**

What inequality represents the verbal expression?

a) all real numbers **x** less than or equal to -7

b) 6 less than a number **k** is greater than 13

c)  $\mathbf{v}$  is greater than or equal to 5

d) the quotient of **k** and 9 is greater than 2

e) **b** is less than 4

f) 3 less than **g** is less than or equal to 17

g) all real numbers **p** greater than or equal to 1.5

h) the sum of **t** and 7 is less than -3

A <u>solution of an inequality</u> is any number that makes the inequality true. The solutions of the inequality x < 5 are all real numbers x that are less than 5. You can evaluate an expression to determine whether a value is a solution of an inequality.

## **PROBLEM 2: IDENTIFYING SOLUTIONS BY EVALUATING**

Is the number a solution of 2x + 1 > 3?

a) -3 b) -1

c) 1

d) Consider the numbers -1, 0, 1, and 3. Which are solutions of  $13 - 7y \le 6$ ?

Determine whether each number is a solution of the given inequality.

e)  $4m - 6 \le 10$  i) 2 ii) 0 iii) 5 f)  $\frac{6-n}{n} \ge 11$  i) 0.5 ii) 2 iii) 4 g) m(m-3) < 54 i) -10 ii) 0 iii) 9



## PROBLEM 4: WRITING AN EQUATION FROM A GRAPH

What inequality represents the graph?



## PROBLEM 5: WRITING REAL-WORLD INEQUALITIES

What inequality describes the situation? Be sure to define a variable.



a)

<mark>8</mark> мрн

b)

Define a variable and write an inequality to model each situation.

c) The restaurant can seat at most 172 people.

d) A person must be at least 35 years old to be elected President of the United States.

e) A light bulb can be no more than 75 watts to be safely used in this light fixture.

f) At least 475 students attended the orchestra concert Thursday night.

g) A law clerk has earned more than \$20,000 since being hired.