

Inequalities and Their Graphs Guide Notes

INEQUALITY is a mathematical sentence that uses an inequality symbol to compare the values of two expressions.

a less than b

a greater than b

a is not equal to b

a less than or equal to b

a greater than or equal to b

Sample Problem 1: Determine if each inequality is true or false.

A. $3 + 2 > 7 - 3$

B. $-8 + 3 \leq 3 - 8$

C. $5 + 6 \geq 10 + 2$

D. $9 + 4 < 6 + 1 + 6s$

Sample Problem 2: Write each algebraic expression from the verbal expression.

A. The sum of x and 16 is greater than or equal to 32.

B. The product of 13 and x is less than 36.

C. The difference of x and 9 is greater than 21.

D. The ratio of x and 4 is less than or equal to 15.

SOLUTION OF AN INEQUALITY is any number that produces a true statement when it is substituted for the variable in the inequality.

Sample Problem 3: Determine whether 6 is the solution for each inequality.

A. $2x - 3 < 8$

B. $x - 5 \geq 1$

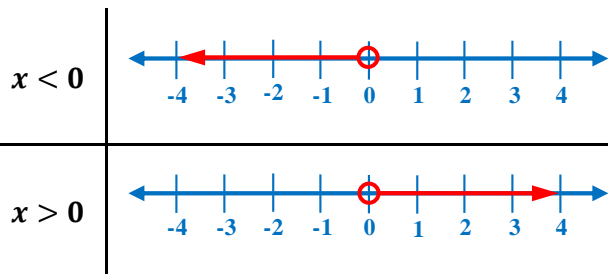
C. $x + 6 > 11$

D. $12 + x \leq 17$

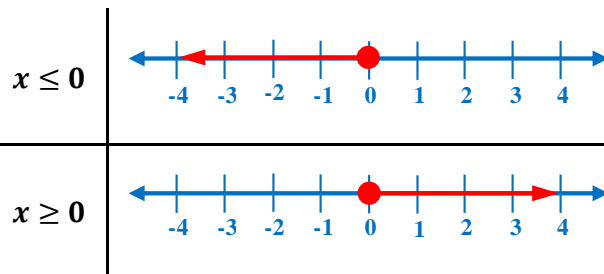
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GRAPH an inequality is the set of points on a number line that represent all solutions of the inequality.

OPEN CIRCLE



CLOSED CIRCLE



Sample Problem 4: Graph each inequality.

A. $x < -5$



B. $x \geq 3$



C. $x > -4$



D. $x \leq 8$

