

Algebra 2

Unit: Rational Functions

Section: Solving Rational Equations and Inequalities

Flashcards: Solving Rational Inequalities

Directions: Find the solutions to the following.

1. Solve x divided by the quantity $x + 1$ is less than or equal to one-half.
2. Solve the quantity $x + 1$ divided by the quantity $x - 1$ is greater than 2.
3. Solve the quantity $1 + x$ divided by the quantity $2x + 3$ is less than 1.

Answers:

1. Step 1: Find where x is not defined: x is not defined at $x = -1$. Step 2: Solve the equation x divided by the quantity $x + 1$ equals one-half. $x = 1$. Step 3: Test a value on each interval to see if the inequality is true on that interval. x is less than negative 1: Not true; negative 1 is less than x is less than or equal to 1: true; x is greater than 1: Not true. The solution is negative 1 is less than x is less than or equal to 1.
2. Step 1: Find where x is not defined: x is not defined at $x = 1$. Step 2: Solve the equation the quantity $x + 1$ divided by the quantity $x - 1$ equals 2. $x = 3$. Step 3: Test a value on each interval to see if the inequality is true on that interval. x is less than 1: Not true; 1 is less than x is less than 3: true; x is greater than 3: Not true. The solution is 1 is less than x is less than 3.
3. Step 1: Find where x is not defined: x is not defined at $x = -\frac{3}{2}$. Step 2: Solve the equation the quantity $1 + x$ divided by the quantity $2x + 3$ equals 1. $x = -2$. Step 3: Test a value on each interval to see if the inequality is true on that interval. x is less than negative 2: True; negative 2 is less than x is less than negative three-halves: Not true; x is greater than negative three-halves: True. The solution is x is less than negative 2 or x is greater than negative three-halves.