Problem Set 2

Intermediate Math Circles Fall 2019
More Fun With Inequalities

Rational Inequalities

Solve each of the following inequalities algebraically and illustrate your answer on a number line.

1. $\dfrac{1}{x} \leq -7$

2. $\dfrac{3}{x-2} \geq \dfrac{1}{4}$

3. $\dfrac{x-3}{x+1} < 2$

Absolute Values

Solve each of the following algebraically. Check your answer graphically.

1. $|x+6| = 5$

2. $|x-4| \geq 1$

3. $|2x+1| < 7$

4. $|x-2| + |x+5| = 8$

5. $|x| + |2-x| \leq 12$

6. $|x| \geq 7$

7. $|x-6| < 5$

8. $|x+2| \geq 8$

Solve each of the following inequalities graphically

1. $|3x| > 6$

2. $|x+1| + |x+6| \geq 4$