

Number Systems

Rational Zeros Theorem

If $P(x)$ is a polynomial with integer coefficients,

and if $\frac{p}{q}$ is a zero of $P(x)$, i.e. $P\left(\frac{p}{q}\right) = 0$

then p is a factor of the constant term of $P(x)$

and q is a factor of the leading coefficient of $P(x)$.

Lesson 3.6_2 Ex.1

$$x^4 - 2x^3 - 7x^2 + 8x + 12$$

vs

Lesson 4.1_1 Ex.2b

$$(x + 2)(10x^2 - 19x - 15) = 0$$

New

$$6x^3 + 41x^2 - 8x - 7 = 0$$

4.2 Solving Linear Inequalities



Math Learning Target:

"By the end of next class, I can solve any linear inequality."

Recall:

= < > ≤ ≥ ≠

Ex. 1: Consider the inequality $12 > 9$...

$12 > 9$ $12 > 9$ $12 > 9$ $12 > 9$ $12 > 9$



Rule:



A **linear inequality** is an inequality that contains algebraic expression(s) that has (have) at most degree 1.

Ex. 2: Solve the linear inequality $\{x \in \mathbb{R}\}$.

$$3x - 5 \leq 0$$

Ex. 3: Solve $\{x \in \mathbb{R}\}$.

$$5 - 2x < -7 + x$$

Ex. 4: Solve $\{x \in \mathbb{R}\}$. Express your final answer in interval notation.

$$|x| \geq 4$$

Ex. 5: Solve $29 \leq 5(2x+3) - 4(x+1) \leq 71$

a) $x \in \mathbb{R}$

b) $x \in \mathbb{W}$

c) $x \in \mathbb{Z}$