Review for Exam 2 - Part I

1 Inequalities

1.1 Equivalent Inequalities

1.1.1 Example

For each pair of inequalities, determine if the two inequalities are equivalent. **Explain your reasoning.**

(a) $4 - x < 1$ and $x > 3$.

(b) $\dfrac{x}{x+3} > 7$ and $x > 7(x+3)$.

1.2 Solving a Linear and Nonlinear Inequalities.

1.2.1 Example

Solve the inequality $4x + 2 \geq 2 + 5x$.

1.2.2 Example

Solve the inequality $(x+2)(x-2)^3(x+4)^2 > 0$. Write your answer in interval notation.

1.2.3 Example

Solve the inequality $x^2 + x > 12$. Write your answer in interval notation.

1.2.4 Example

Solve the inequality $x^2 + x > 12$. Write your answer in interval notation.

1.2.5 Example

Solve the inequality $\dfrac{1}{x-2} \geq \dfrac{4}{x+2}$. Write your answer in interval notation.

1.2.6 Example (Challenging)

Solve the inequality $|x-2|+3<6$. Write your answer in interval notation.