

Assignment

Write

In your own words, explain how solving a polynomial inequality is similar to solving a linear inequality.

Remember

The solutions to a polynomial inequality are intervals of x -values that satisfy the inequality.

Practice

- Emilio has been trying to regulate the pH level in his tropical fish aquarium for 5 hours. In order to make the water safe for his fish, Emilio must keep the pH level less than or equal to 9. The function $p(x) = -0.34x^3 + 2.652x^2 - 5.4638x + 11.1114$ represents the pH level in the tank x hours since Emilio began to regulate it.
 - Write an inequality that represents the pH level in the tank being in the safe range.
 - Solve the inequality and determine the time intervals during which the pH level in the tank safe for Emilio's fish.
- Solve the inequality $2x^3 - 8x \leq 0$ by factoring and sketching. Use the given coordinate plane to sketch the general graph of the polynomial in order to determine which values satisfy the inequality. Label the axes.

Stretch

Solve $x^5 - 4x^3 + x^2 - 4 \leq 0$.

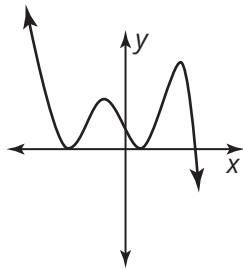
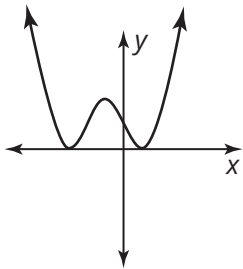
Review

1. Completely factor each expression over the set of real numbers.

a. $x^3 - 4x^2 - x + 4$

b. $x^4 - 8x^2 - 9$

2. Describe the combination of real and imaginary zeros for each graphed function. Include the multiplicity of each real zero.



3. Describe the end behavior of each function.

a. $f(x) = -x^4 - 4x^3 + 3x + 25$

b. $g(x) = 2x^5 - 9x^3 + 5x^2 - 8x - 10$