Math-19 Homework #5

Problems

1). Solve each of the following for x. Express your answers both graphically and in interval notation:

   a). $x^2 + 9x - 36 = 0$

   b). $x^2 + 9x - 36 < 0$

   c). $x^2 + 9x - 36 \geq 0$

2). Solve each of the following for x. Express your answers both graphically and in interval notation:

   a). $\frac{x+3}{x-1} = 0$

   b). $\frac{x+3}{x-1} > 0$

   c). $\frac{x+3}{x-1} \leq 0$

3). Solve each of the following for x. Express your answers both graphically and in interval notation:

   a). $3\,|x - 1| + 1 = 7$

   b). $3\,|x - 1| + 1 \leq 7$

   c). $3\,|x - 1| + 1 \geq 7$

4). Find the domain of the following expressions. Express your answers both graphically and in interval notation:

   a). $\sqrt{\frac{x^2+2x-3}{x^2+5x+6}}$

   b). $\sqrt[3]{\frac{x^2+2x-3}{x^2+5x+6}}$

5). Muri is a shopkeeper that specializes in pickled vegetables. She has determined over the years that the best brine (salt solution) for pickling vegetables is 2 kg of salt per liter of water (2 kg/L). One day, she has her not-so-bright nephew helping her and he uses too much salt, resulting in a 5 kg/L solution. If her nephew made up 10 liters of the too-salty solution, how much pure water must he add to it to get the ideal 2 kg/L solution? For full credit, show the mixture equation and the appropriate values for each concentration and volume value in the equation.