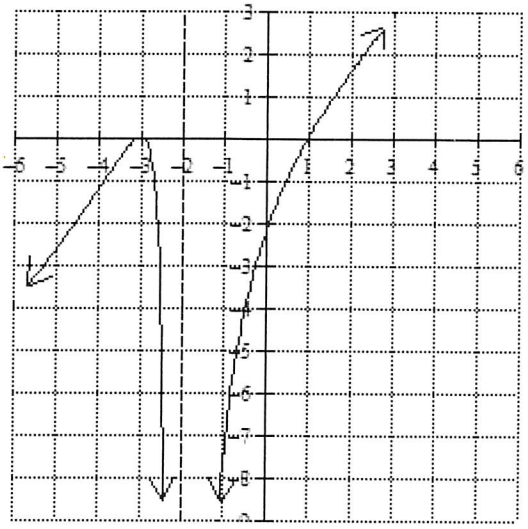
Name_____ Date_____ Period_____

Day #34 Homework

The graph of the rational function $h(x)=\dfrac{(x+3)^2(x-1)}{(x+2)^2}$ is shown to the right. Graphically determine the solutions to the following inequalities. Give a reason for your solution intervals based on the graph.

1. $h(x)<0$

2. $h(x)\geq 0$



For exercises 4 and 5 below, give a reason for your solution based on your sign analysis performed in exercise 3 below.

3. Perform a sign analysis for the function $h(x)=\dfrac{(x+3)^2(x-1)}{(x+2)^2}$ that will be used to solve the Inequalities in exercises 4 and 5 below.

4. $\dfrac{(x+3)^2(x-1)}{(x+2)^2}<0$

5. $\dfrac{(x+3)^2(x-1)}{(x+2)^2}\geq 0$

Algebraically solve each of the following rational inequalities. Show your sign analysis.

6. $\dfrac{(x-3)(x-4)}{(x-5)(x-6)^2} < 0$

7. $\dfrac{(x+2)(x-5)^2}{(x-4)} \leq 0$

8. $\dfrac{x^2+4x+4}{x^2+4x} > 0$

9. $\dfrac{4}{x-3} \geq \dfrac{2}{x-5}$