Rational Functions Project

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Project for Rational Functions:
This application is a Cost-Benefit Model. A utility company burns coal to generate electricity. The cost C (in dollars) of removing p amount (percent) of the smokestack pollutants is given by:

$$C(p) = 80,000p/(100-p)$$

x axis

1. Is it possible for the company to remove 100 percent of the pollutants? Discuss why or why not, and support your response by using algebraic analysis on the given model.

It is impossible to remove the 100 percent of the pollutants, mainly because the company would have to stop producing; they can probably reduce the pollutants but they can't remove them all.
Economically it would harm the company and it wouldn't be a productive idea. Algebraically explained, if we substitute the "p" of percent with the 100 value, the equation requires to divide a number by zero, which is impossible. This means that the result would be zero or an indefinite number, so we conclude that the company can't remove the 100 percent of pollutants.

2. What happens if the company does try to remove 100 percent of the pollutants? Will the company be successful at doing so, or will the attempt end in failure, that is, will it be too much expense for the company?

If the company tries to remove the 100 percent of pollutants, it will stop working and their earnings will drop, it isn't possible to stop the pollution.
The company will failure in this attempt because it is financially impossible, this means that the cost of releasing the 100 percent of the pollutants is greater than their production of energy so it wouldn't be an affordable economic idea (it's too much expense for the company).

Make a graph to show what the consequences of the last question would be. Then discuss their impact on the company's expense (Explain).

As we can see on the graph, the company would spend $80,000 in something that wouldn't have any benefits to the company, either for the pollutants nor financially.