

**Jose David Martienez A01197307**

**Hector Villarreal**

**A01570227**

## **Rational Functions Project**

### **Project for Rational Functions:**

**Application of Rational Functions:** If you want to know why it is important to understand Rational Functions, consider the following.

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:



$$C(p) = \frac{80,000p}{(100-p)}$$

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. Remember to write in complete sentences. **No es posible porque es imposible eliminar el 100**

**% de los pollutants porque sustituyendo en la ecuación te dara indefinido.**

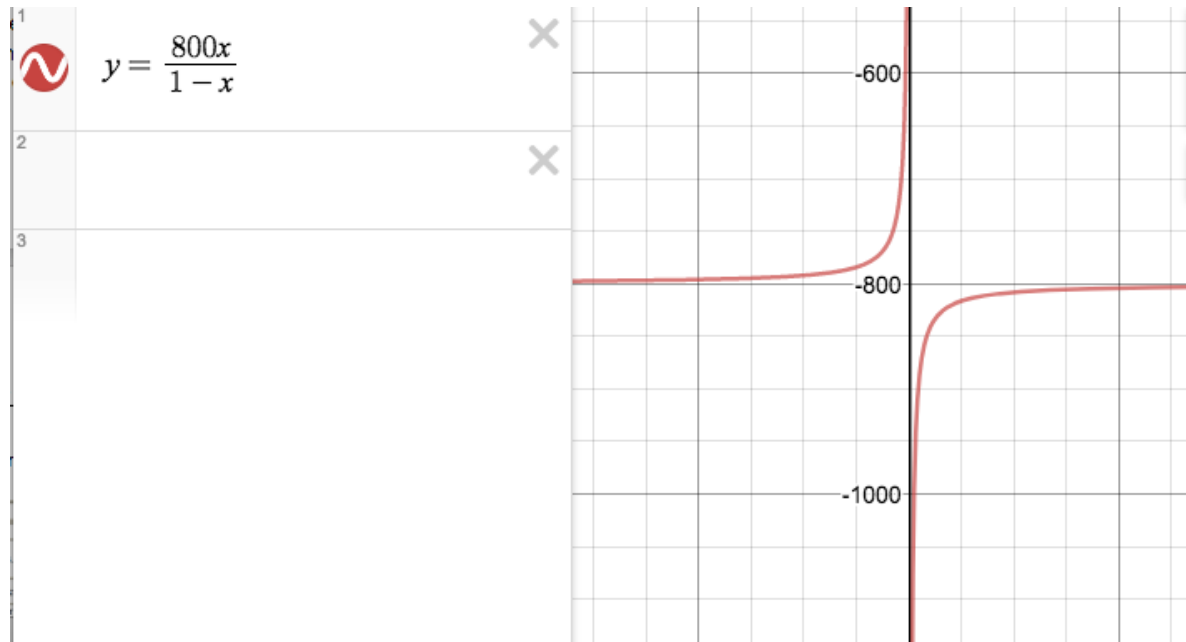
What happens if the company does try to remove 100 percent of the pollutants? Will the company be successful at doing so, or will the attempt end in failure, that is, will it be too much expense for the company? Explain your thoughts and remember to write in complete sentences. **Seria un error completamente intetnytar hacer esto porque si la compañía lo hace entre se acerquen mas al 100% los precios incrementarían demasiado.**

Make a graph to show what the consequences of the last question would be. Pick your scale carefully so that all the information you want to discuss is

visible on the graph. Remember to label the axes and show units and tick marks. Show the vertical asymptotes as dashed lines and label them. Then discuss their impact on the company's expense (Explain). There are numerous interactive graphing resources on the Internet that can be used.

Google

it!)



Tubimos que reducir un poco la ecuacion para poder ver el comportamineto de la grafica

*This project is slightly adapted from one written by a Professor Rust. I do not know who he or she is so I cannot give more complete credit than that.*

SOURCE: [http://graybeard.wikispaces.com/file/view/Rational\\_Functions\\_Project.pdf](http://graybeard.wikispaces.com/file/view/Rational_Functions_Project.pdf)

|                               | Criteria  |   |  |  | Points |
|-------------------------------|---|---|--|--|--------|
|                               | 4   | 3   | 2  | 1  |        |
| <b>Explanation</b>            | A complete response with a detailed explanation showing individual insight.   | Response is a clear explanation, but no personal in depth details.  | Explanation is unclear.  | Misses key points.   | —      |
| <b>Use Of Visuals</b>         | Clear diagram or sketch with details and labeling.  | Diagram or sketch with no details or labeling.  | Inappropriate or unclear diagram.  | No diagram or sketch.  | —      |
| <b>Mechanics</b>              | No math errors. Complete sentences and properly constructed paragraphs  | No <b>major</b> math errors, serious flaws in reasoning, or major grammar and sentence structure problems                 | May be <u>some</u> serious math errors, flaws in reasoning, or grammar and sentence structure mistakes | Major math errors, serious flaws in reasoning, major grammar and sentence structure mistakes | —      |
| <b>Demonstrated Knowledge</b> | Shows complete understanding of the questions, mathematical ideas, and processes, gives individual insight to problem.      | Shows understanding of the problem, ideas, and processes, but no individual insight added only definitions given.         | Response shows some understanding of the problem.  | Response shows a complete lack of understanding for the problem.                             | —      |
| <b>Requirements</b>           | Goes beyond the requirements of the problem, explains concepts in detail enhancing answers with own insights and reasoning. | Meets the requirements of the problem, may explain concepts by stating definitions, instead of contributing own insights. | Hardly meets the requirements of the problem.  | Does not meet the requirements of the problem.   | —      |
|                               |   |   |  | <b>Total----&gt;</b>   | —      |

Teacher Comments: