

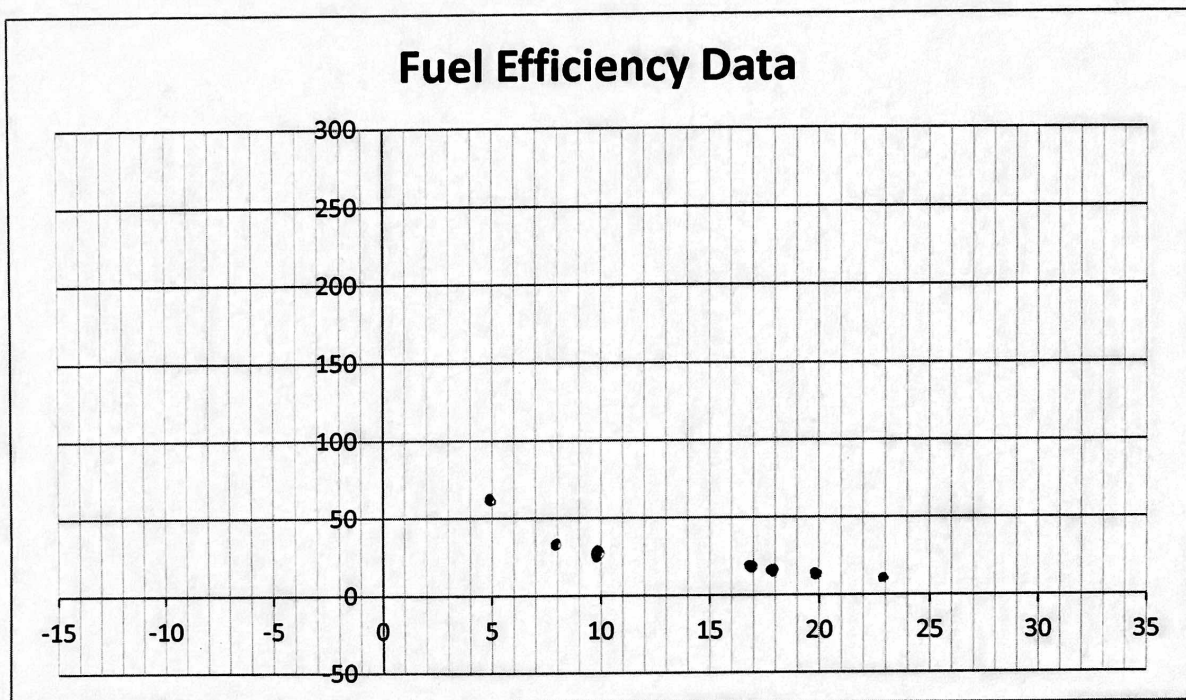
## Homework

The fuel efficiency of a car on a 300 mile test run can be calculated by the formula  $E(g) = \frac{300}{g}$ , where  $E(g)$  is fuel efficiency and  $g$  is the gallons of gas used.

1. Fill in the chart below to reflect fuel efficiency as a function of gallons of gas used.

Gas used (gallons)	5	8	10	13	17	18	20	23
Fuel efficiency (miles per gallon)	60	37.5	30	23.08	17.65	16.67	15	13.04

2. Create a graph to represent the function from problem 1.



3. What is your  $k$  value?

$$k = 300$$

4. As the domain values continue to increase, what seems to be the range value that the graph is approaching?

zero

5. Is there ever a time when the 300 miles can be driven using 0 gallons of gas?

$$E(g) = \frac{300}{0} \text{ NO, impossible}$$

6. Can someone complete the course with a fuel efficiency of 0 miles per gallon? How can we see this on your graph?

$$\text{NO, } 0 = \frac{300}{g}$$

↓  
impossible

There is a horizontal asymptote at  $y = 0$