

In 2007, a university study was published investigating the crash risk of alcohol impaired driving. Data from 2,871 crashes were used to measure the association of a person's blood alcohol level (BAC) with the relative risk of being in an accident. The relative risk is a measure of how many times more likely a person is to crash. So, for example, a person with a BAC of 0.09 is 3.54 times as likely to crash as a person who has not been drinking alcohol. Let  $x$  represent the BAC level, and let  $y$  represent the corresponding relative risk. The data is given below,

Blood alcohol level	Relative Risk of Crashing
0	1
0.01	1.03
0.03	1.06
0.05	1.38
0.07	2.09
0.09	3.54
0.11	6.41
0.13	12.6
0.15	22.1
0.17	39.05
0.19	65.32
0.21	99.78

1. Which model fits the data best? Find the corresponding coefficients and hence the equation. (12)
2. After 6 drinks, a person weighing 160 pounds will have a BAC of about 0.16. How many times more likely is a person with this weight to crash if they drive after having a 6-pack of beer? Round to the nearest hundredth. (3)