

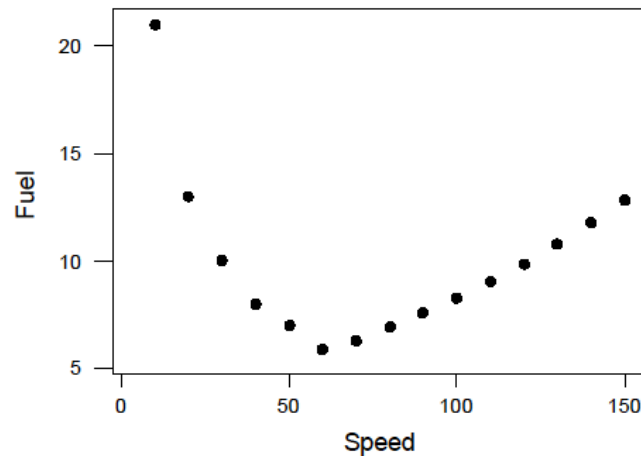
**60080079 Introduction to Statistical Methods**  
**Semester 2 2023-2024**  
**Solutions 2**

1. Write your answer as a three-digit number: 142

The area to the right of  $X = 140$  is the same as the area to the right of  $Z = 2.67$ . The probability of a number greater than  $X = 140$  (or  $Z = 2.67$ ) is 0.0038.

Area between  $X = 100$  and  $X = 120$  is the same area between  $Z = 0$  and  $Z = 1.33$ , and the probability between  $Z = 0$  and  $Z = 1.33$  is  $0.9082 - 0.5000 = 0.4082$ .

2. Write your answer as a three-digit number: 331



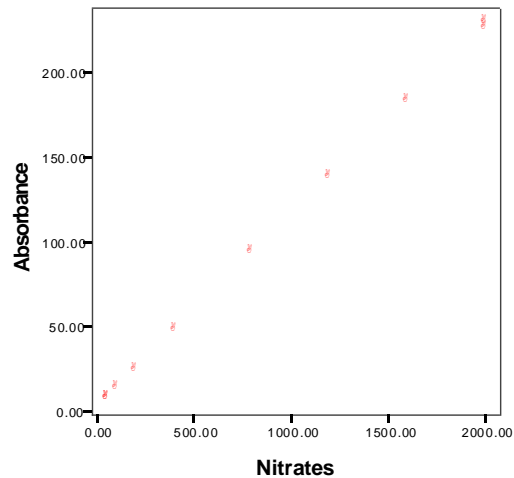
Fuel decreases until speed exceeds 60 km/h and then increases beyond that. 60 km/h is probably where the car shifts into high gear, which is more efficient. As speeds increase, wind resistance becomes more of a factor, causing fuel consumption to increase. High values of fuel consumption are associated with both low and high speeds. The relationship appears to be quite strong. It would appear that two curves (one for below 60 km/h and one above) would fit the data quite well.

3. Write your answer as a four-digit number: 2314

4. Write your answer as a three-digit number: 223

5. Part I: Write your answer as a three-digit number: 121

Part II: Write your answer as a three-digit number: 234



6. Write your answer as a four-digit number: 2134

7. Part I: Write your answer as a four-digit number: 2431

Part II: Write your answer as a two-digit number: 13

Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	13.604	177.273		.077
	X	2.536	1.244	.415	2.038
					.055

a. Dependent Variable: Y

Without the outlier:

Coefficients <sup>a</sup>					
		Unstandardized Coefficients		Standardized Coefficients	
		B	Std. Error	Beta	
1	(Constant)	559.754	182.937		3.060
	X	-1.218	1.271	-.215	-.958
					.350

a. Dependent Variable: Y

The regression equations are dramatically different with or without Brand 15. This shows that Brand 15 is influential. When the value of the explanatory variable is out of range, the predicted response will not be reliable because the behavior of the relationship may change outside the range studied.

8. Write your answer as a single-digit number: 2