

## LC 2017: PAPER 2

### QUESTION 2 (25 MARKS)

Table 1							
<b>Speed (km/hour)</b>	40	48	56	64	88	96	112
<b>Fuel consumption (km/litre)</b>	21	16	18	16	13	11	9

#### Question 2 (a)

Correlation coefficient  $r = -0.957$

#### CALCULATOR: FINDING CORRELATION COEFFICIENT $r$

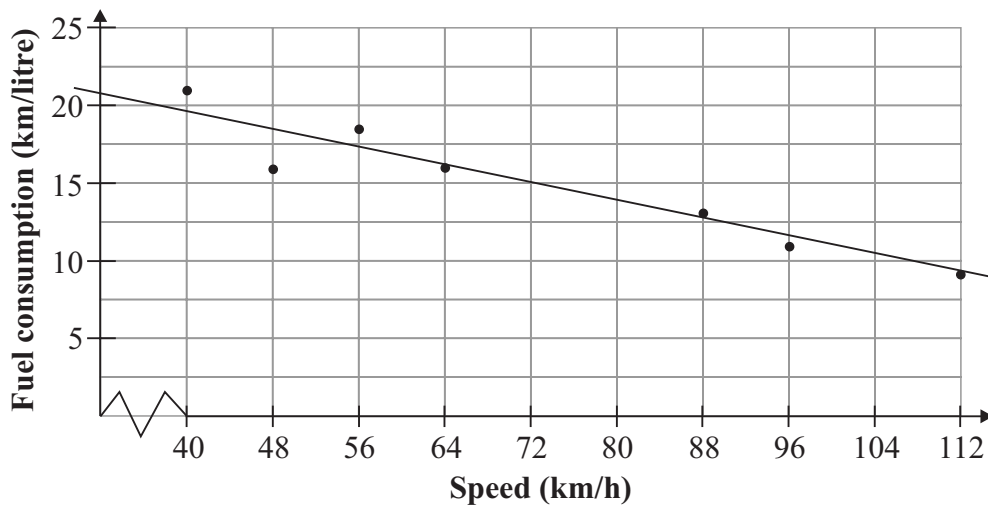
- Press MODE
  - Press 2: STAT
  - Press 2: A + BX
- Now input your data.

When you are finished:

- Press AC.
- Press SHIFT followed by the number 1 button
- Press 5: Reg
- Press 3: r
- Press equals



#### Question 2 (b)



#### Question 2 (c)

A slope of the line of best fit of  $-0.15$  means that for every  $0.15$  km/h reduction in speed there is a saving of fuel consumption of  $1$  km/litre.

#### Question 2 (d) (i)

Mary:  $v = 96$  km/h,  $s = 260$  km

$$t = \frac{s}{v} = \frac{260}{96} = \frac{65}{24} \text{ h} = 162.5 \text{ mins}$$

Jane:  $v = 112$  km/h,  $s = 260$  km

$$t = \frac{s}{v} = \frac{260}{112} = \frac{65}{28} \text{ h} = 139.3 \text{ mins}$$

Difference in journey times =  $162.5 - 139.3 \approx 23$  mins

**Question 2 (d) (ii)**

Mary:  $v = 96$  km/h,  $s = 260$  km, Fuel consumption = 11 km/l

$$\text{Number of litres} = \frac{260}{11} = 23.636$$

$$\text{Cost} = 23.636 \times 132.9 \text{ c} = \text{€}31.41$$

Jane:  $v = 112$  km/h,  $s = 260$  km, Fuel consumption = 9 km/l

$$\text{Number of litres} = \frac{260}{9} = 28.889$$

$$\text{Cost} = 28.889 \times 132.9 \text{ c} = \text{€}38.39$$

$$\text{Difference in cost} = \text{€}38.39 - \text{€}31.41 = \text{€}6.98$$

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