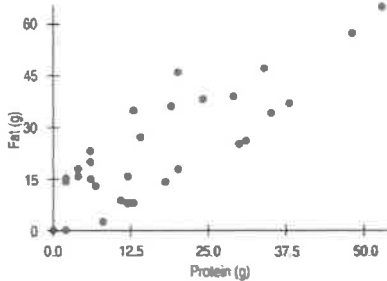


## Assignment 2

The following is a scatterplot of total *fat* versus *protein* for 30 items on the Burger King menu:



1. Estimate a reasonable value for the linear correlation coefficient  $r =$  \_\_\_\_\_
2. Interpret the correlation (*remember, there may be two things you need to do*)

### Do heavier cars really use more gasoline?

3. Create a scatter plot given the two-variable data. Be sure to put the dependent variable, the response variable, on the x-axis. Always label each axis fully.

<i>Weight of car in hundreds of pounds (x)</i>	27	44	32	47	23	40	34	52
<i>Miles per gallon (y)</i>	30	19	24	13	29	17	21	14

4. Just by viewing the scatter plot, interpret the correlation.
5. Calculate the linear correlation coefficient to confirm your interpretation.  $r =$  \_\_\_\_\_

6. Now calculate  $r$  by "hand" showing the complete formula, followed by the formula with the three critical totals shown, followed by the answer.

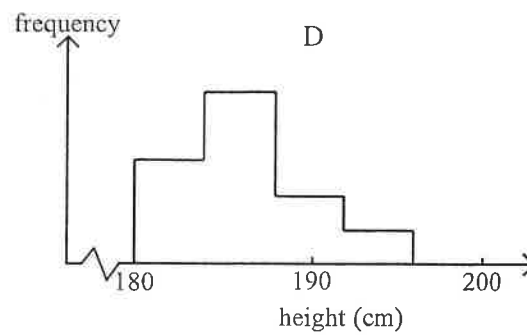
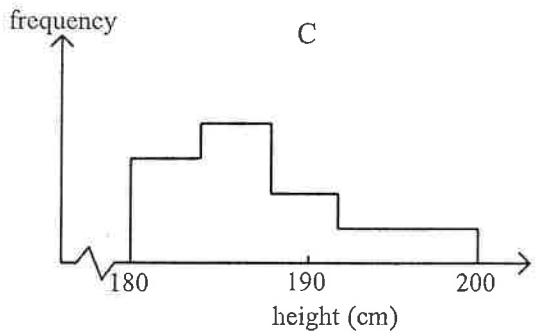
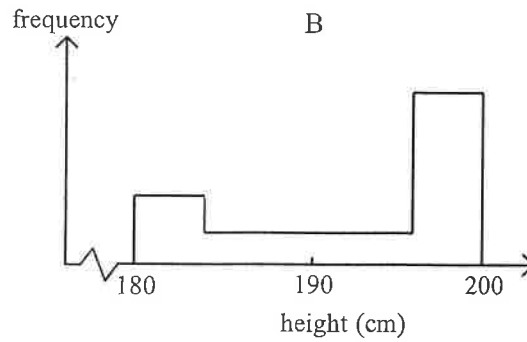
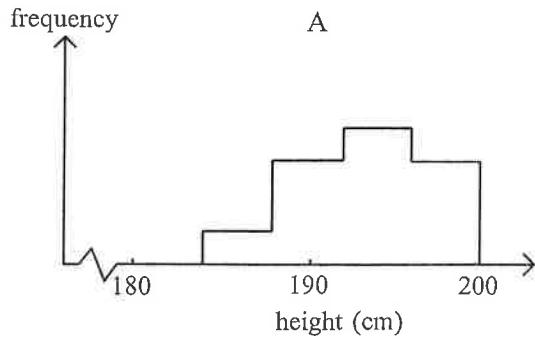
7. Calculate the LSRL (least squares regression line which is a commonly accepted line of best fit). Use the calculator basics reference sheet if needed.

$$y = \underline{\hspace{10em}}$$

8. Use the LSRL equation to estimate the gas mileage of a car that weighs 2000 pounds.

Do you feel this estimate is trustworthy?

9. The heights in cm of the members of 4 volleyball teams A, B, C and D were taken and represented in the frequency histograms given below.



The mean  $\bar{x}$  and standard deviation  $\sigma$  of each team are shown in the following table.

	I	II	III	IV
$\bar{x}$	194	189	188	195
$\sigma$	6.50	4.91	3.60	3.74

Match each pair of  $\bar{x}$  and  $\sigma$  (I, II, III, or IV) to the correct team (A, B, C or D).

$\bar{x}$ and $\sigma$	Team
I	
II	
III	
IV	

10.

Look at your formula sheet as Needed

Below is the diagram of a cone shaped tent. Angle NPX is  $16^\circ$ , the slant height of the cone is 3.3m.

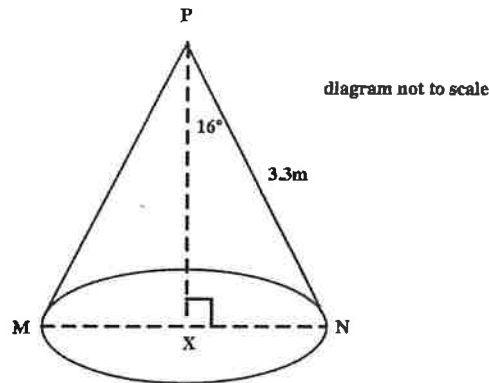


diagram not to scale

- (a) Find the radius of the cone. [2]
- (b) Find the vertical height of the cone. [2]
- (c) Find the volume of the cone. [2]

Working.....

(a) \_\_\_\_\_

(b) \_\_\_\_\_

(c) \_\_\_\_\_

(6 marks)