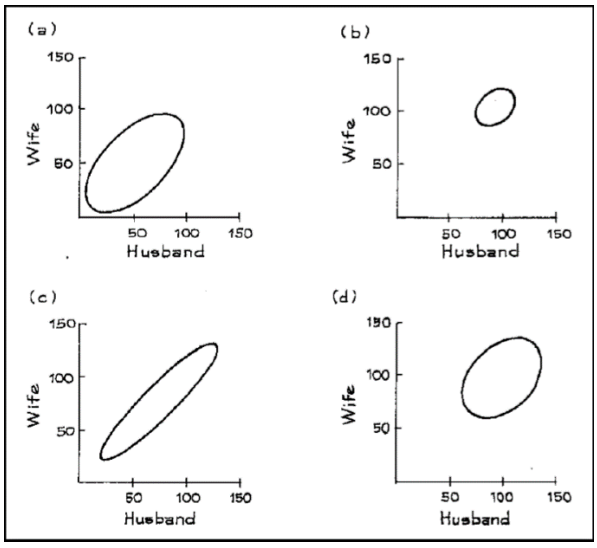
Week 7. STAT1020 Discussion section – Issac Lee

1. Correlation coefficient (Husbands and Wives, Prof. A)
   1) A study of the IQs of husbands and wives obtained the following results;

      $r = 0.6$

Husbands	Average	Std.
	100	15
Wives	Average	Std.
	100	15

      Which graph is from the study? Briefly explain why you rejected the other graphs.



   2) An investigator collected data on heights and weights of college students. The results are summarized in the table below,

Sex	Height (inch.)		Weight (lb)	
	Ave	Std	Ave	Std
Males	70	3	144	21
Females	64	3	120	21

The correlation coefficient between height and weight for the men was about 0.6, and for women it was the same. If you take the men and women together, the correlations between height and weight would be

A. About 0.6
B. Somewhat less than 0.6
C. Somewhat greater than 0.6
D. Impossible to determine from the information given.

2. Regression model

1) (Textbook CH7. Ex15) For many people, breakfast cereal is an important source of fiber in their diets. Cereals also contain potassium, a mineral shown to be associated with maintaining a healthy blood pressure. An analysis of the amount of fiber (in grams) and potassium content (in milligrams) in servings of 77 breakfast cereals produced the regression model $\widehat{\text{Potassium}} = 38 + 27\ Fiber$.
   a) If your cereal provides 9 grams of fiber per serving, how much potassium does the model estimate you will get?
   b) After your prediction, you measured your cereal's potassium amount, and it was 210 milligrams. What was the residual of the above prediction?

2) (Textbook CH7. Ex25) Fill in the missing information in the following table:

	$\bar{x}$	s_x	$\bar{y}$	s_y	r	$\hat{y} = b_0 + b_1 x$
a)	10	2	20	3	0.5	
b)	2	0.06	7.2	1.2	-0.4	
c)	12	6			-0.8	$\hat{y} = -10 + 15x$
d)	2.5	1.2		100		$\hat{y} = 30 - 2x$

3) What if we do regression analysis on Husbands and Wives data set, what does the regression formula look like? How about R^2, and what does this value mean?