

系所組別：環境醫學研究所丙組

考試科目：生物統計與流行病學

考試日期：0220 · 節次：3

※ 考生請注意：本試題 可 不可 使用計算機

1. Consider a linear regression model where height measured in inches is the predictor and weight measured in inches is the outcome variable. Which of the following item will change if the units of both height and weight are changed to centimeters? Explain your answer for each item. (5% each, multiple choices).
- P-value of the regression model
 - Model r-square of the regression model
 - Beta estimate of the intercept
 - Beta estimate of the slope

2. Use the following 2 by 2 table (Sex by abdominal pain) to answer the following questions.

	No pain	Pain
Female	22	8
Male	13	17

A. Consider a random sample from the same population

A.1: What is the probability of selecting a man? (5%)

A.2: What is the proportion of men with abdominal pain? (5%)

A.3: Give that the individual is a female, how likely will she have abdominal pain? (5%)

A.4: For those subjects with pain, how likely will they be male? (5%)

B. Assuming that the data is collected from a Case-Control Study, what is the odds ratio of having no pain for woman vs. man? (5%)

C. Assuming that the data is collected from a Cohort (prospective) Study, what is the relative risk of having "no pain" for man vs. woman? (5%)

3. Please provide an example to elaborate on what the effect modification is. (15 %)
4. Please devise a case-control study and elaborate on how to select a representative control group. (15 %)
5. Please explain the following terms: (5 % each)
- Unnecessary matching
 - Dose-response relationship
 - Direct standardization
 - Odds