

系所組：機械工程學系數位機電碩士班甲組

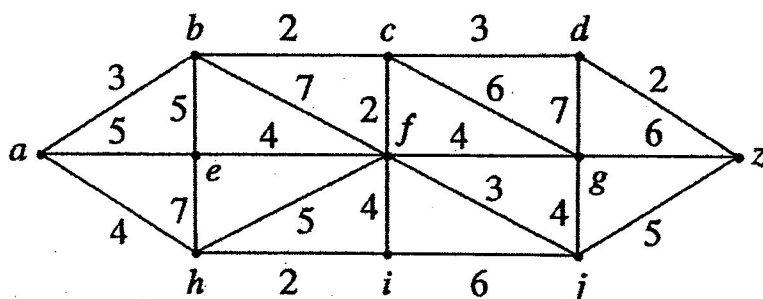
日期節次：102 年 3 月 15 日第 1 節 9:00~10:30

科目：離散數學

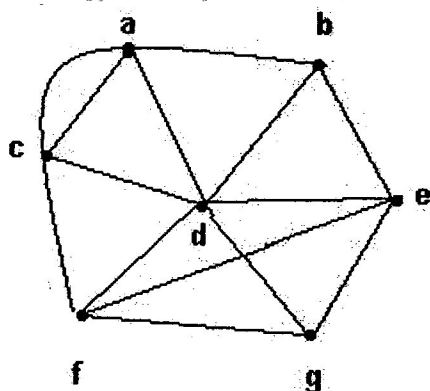
M-7-2 ✓

一、填充題 (共 60 分 每題 10 分)

1. The length of the shortest path from a to z is x and the length of the shortest path from h to d is y. $x+y=?$



2. $a_n = 6a_{n-1} - 8a_{n-2}, a_0 = 1, a_1 = 0$, the solution is $a_n = x^{n+1} - y^n$, $x+y=?$
3. $2a_n = 7a_{n-1} - 3a_{n-2}, a_0 = 1, a_1 = 1$, the solution is $a_n = (x^{2-n} + y^n)/z$, $x+y+z=?$
4. $\lceil 8.3 \rceil + \lceil 9.1 \rceil + \lfloor -8.7 \rfloor + \lfloor -11.3 \rfloor = ?$
5. The total degrees of the following graph is



6. Using the generalized De-Morgan's law for logic, find the negation of $\exists x \forall y \forall z P(x, y, z)$.

二、計算證明題 (共 40 分 每題 20 分)

1. Prove $\sqrt{17}$ is irrational.

2.



第 1 頁共 1 頁

上圖為 tromino 由三個黑色方塊組成，請證明 tromino 可填滿以下由方塊組成的圖形。 $2^n \times 2^n$ 表示由 $2^n \times 2^n$ 個方塊組成的方陣。

