EXAM C QUESTIONS OF THE WEEK

S. Broverman, 2007

Week of February 19/07

You are given the following data set for the times of death or right-censoring (+) for 25 individuals:
2, 3, 3, 3^+, 4, 4, 4, 4, 4^+, 5^+, 6, 6, 7, 7, 7, 7^+, 7^+, 8, 9, 10, 12^+, 13, 13, 14, 16

Find Greenwood's approximation to the variance of $S_{25}(11)$.
A) .009 B) .010 C) .011 D) .012 E) .013

The solution can be found below.

Week of February 19/07 - Solution

$r_1 = 25$, $r_2 = 24$, $r_3 = 21$, $r_4 = 15$, $r_5 = 13$, $r_6 = 8$, $r_7 = 7$, $r_8 = 6$, $r_9 = 4$
$s_1 = 1$, $s_2 = 2$, $s_3 = 4$, $s_4 = 2$, $s_5 = 3$, $s_6 = 1$, $s_7 = 1$, $s_8 = 1$.
$\sum_{t_i \le 11} \frac{s_i}{r_i(r_i - s_i)} = \frac{1}{(25)(24)} + \frac{2}{(24)(22)} + \frac{4}{(21)(17)} + \frac{2}{(15)(13)} + \frac{3}{(13)(10)}$
$+ \frac{1}{(8)(7)} + \frac{1}{(7)(6)} + \frac{1}{(6)(5)} = .1250$.
Greenwood's approximation is $\widehat{Var}[S_n(11)] = [S_n(11)]^2(.1250) = (.2968)^2(.1250) = .0110$.
Answer: C