***Individual work. Open book (including all suggested reading) and open notes. Remember to show and explain enough of your work to prove to me that you know the procedure, not just the answer. Computer checks of your work, where applicable, are optional (but encouraged).***

1. Show, by solving the integral, that the convolution of two identical

square pulses of height 1.0 is a triangle pulse of height 1.0.

2. Evaluate



3. Calculate the coefficient of correlation and obtain the line of regression for the following data.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| Y | 9 | 8 | 10 | 12 | 11 | 13 | 14 | 16 | 15 |

find also an estimate for Y which would correspond to X = 6.2.

4. Find the values of a, b and c so that y = a + bx + cx2 is the best fit to the data.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| x | 0 | 1 | 2 | 3 | 4 |
| y | 1 | 0 | 3 | 10 | 21 |

Do these Boas problems:

6.10.12

8.2.19

9.5.4

11.9.4

12.16.2

13.8.1

14.5.3

15.9.3