**MAKERERE COLLEGE SCHOOL**

**S.6. APPLIED MATHEMATICS MID TERM 1 EXAM 2012**

***INSTRUCTIONS TO CANDIDATES:***

Answer **all** questions

**Time: 1 hour**

1. (a) Two numbers  and  are rounded to and with errorsand  respectively. Show that the maximum possible relative error in using as an estimation for is 

(b) Given that the area of a scalene triangle is . If, and and are measured with maximum possible errors of 0.05, 0.05 and 0.5 respectively. Find the percentage error in the area of the triangle. (12 marks)

1. Find the interval within which the exact value of if all the numbers are rounded to the given number of decimal places. (6 marks)
2. The temperatures (0C) of a cooling body measured every 10 minutes are 86, 74, 60, and 44. if the body’s initial temperature is 970C, find the:

(i) time taken for the body to cool to 630C

(ii) temperature of the body after 45 minutes. (6 marks)

1. For a discrete random variable X, the cumulative distribution function F(X) is as shown below:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

Use linear interpolation to estimate the

* 1. value of 
  2. Angle whose cotangent is  (6 marks)