

NAG Toolbox for MATLAB

g05dy

1 Purpose

g05dy returns a pseudo-random integer taken from a uniform distribution over the interval $[m, n]$.

2 Syntax

```
[result] = g05dy(m, n)
```

3 Description

The distribution of a uniform random variable, I , is given by

$$P(I = i) = \frac{1}{n-m+1} \quad \text{if } m \leq i \leq n,$$

$$P(I = i) = 0 \quad \text{otherwise,}$$

assuming $m \leq n$. g05dy returns the value $m + [(n - m + 1)y]$ where $[]$ denotes the integer part, and y is a pseudo-random number from a uniform distribution over $(0, 1)$, generated by g05ca. If $m > n$, the roles of m and n are reversed.

4 References

Knuth D E 1981 *The Art of Computer Programming (Volume 2)* (2nd Edition) Addison–Wesley

5 Parameters

5.1 Compulsory Input Parameters

1: **m** – int32 scalar

2: **n** – int32 scalar

The end points m and n of the distribution. It is not necessary that $m < n$.

5.2 Optional Input Parameters

None.

5.3 Input Parameters Omitted from the MATLAB Interface

None.

5.4 Output Parameters

1: **result** – int32 scalar

The result of the function.

6 Error Indicators and Warnings

None.

7 Accuracy

Not applicable.

8 Further Comments

None.

9 Example

```
m = int32(-5);  
n = int32(5);  
g05za('O');  
g05cb(int32(0));  
[result] = g05dy(m, n)
```

```
result =  
      3
```
