

1 SUMMARY

Finds K the **H.C.F. of two given integers** I and J . It also finds integers M and N such that

$$M \times I - N \times J = K \quad K > 0$$

and $M \times I, N \times J \geq 0$ and such that $\max\{|N|, |M|\}$ is minimized.

ATTRIBUTES — **Version:** 1.0.0. **Types:** ID02A. **Original date:** July 1964. **Origin:** A.Gavan, Harwell.

2 HOW TO USE THE PACKAGE

2.1 The argument list

```
CALL ID02A(I, J, M, N, K)
```

I, J are INTEGER variables which must be set by the user to the two integers I and J for which the Highest Common Factor is required.

M, N are INTEGER variables which are returned set by the subroutine to two integers M and N such that

$$M \times I - N \times J = K \quad K > 0$$

and $M \times I \geq 0$ and $N \times J \geq 0$ are chosen so that $\max\{|N|, |M|\}$ is minimized subject to the constraint that $M \times I$ and $N \times J$ are both non-negative.

K is an INTEGER variable set by the subroutine to K the H.C.F of the two integers I and J . The value of K will always be non-negative.

3 GENERAL INFORMATION

Use of common: None.

Workspace: None.

Other routines called directly: None.

Input/output: None.