



# DECUS

## PROGRAM LIBRARY

DECUS NO.	FOCAL8-49
TITLE	CONSTANTINE'S FUNCTION
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DATE	September 1969
SOURCE LANGUAGE	FOCAL

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# CONSTANTINE'S FUNCTION

DECUS Program Library Write-up

FOCAL-8-49

## DESCRIPTION

Solution of and graphical output of the function:

$$M(\sigma, \tau) = \frac{4}{\pi} * \sum_{n=0}^{\infty (N=6)} (-1)^n * e^{-\frac{(N^2+1)}{2}} * \left(\frac{2\sigma}{\tau}\right)^2 * \pi^{-2}$$

as  $\frac{2\sigma}{\tau}$  varies from 0 to 1.



@?Ø1.ØØ  
 \*WRITE  
 C-FOCAL,1969

Ø1.Ø1 SET X=Ø  
 Ø1.Ø5 SET PI=3.1416  
 Ø1.1Ø FOR V=Ø,.1,.9; DO 2.Ø  
 Ø1.2Ø QUIT

Ø2.1Ø SET SUM=Ø;SET N=Ø  
 Ø2.2Ø SET K=τ(N↑2+1)↑21/2  
 Ø2.3Ø SET CE=K\*V↑2\*PI↑2  
 Ø2.4Ø SET TE=τ(-1)↑Nj\*FEXP(-CE)  
 Ø2.5Ø SET SUM=SUM+TE  
 Ø2.6Ø SET N=N+1  
 Ø2.7Ø IF (N-4)2.2,2.2,2.8  
 Ø2.8Ø TYPE %8.Ø4, "M(M,T)", (4/PI)\*SUM,#  
 Ø2.9Ø DO 3.Ø

Ø3.1Ø IF (V)3.14,3.11,3.14  
 Ø3.11 FOR YS=Ø,3Ø;TYPE " "  
 Ø3.12 FOR YS=Ø,4Ø;TYPE ". "  
 Ø3.13 TYPE #  
 Ø3.14 FOR YS=Ø,31;TYPE " "  
 Ø3.15 TYPE %2.Ø2, "V", X/1Ø;SET X=X+1;TYPE #  
 Ø3.2Ø FOR Y=Ø,29+4Ø\*(SUM);TYPE " "  
 Ø3.3Ø TYPE "\*"!  
 Ø3.4Ø FOR YS=Ø,29;TYPE " "  
 Ø3.5Ø TYPE ".",!  
 \*

GO

M(M,T)=	1.2732	.V= Ø.Ø	
M(M,T)=	Ø.5284	V= Ø.1	*
M(M,T)=	Ø.4762	V= Ø.2	*
M(M,T)=	Ø.6Ø12	V= Ø.3	*
M(M,T)=	Ø.524Ø	V= Ø.4	*
M(M,T)=	Ø.3616	V= Ø.5	*
M(M,T)=	Ø.2144	V= Ø.6	
M(M,T)=	Ø.1134	V= Ø.7	
M(M,T)=	Ø.Ø541	*V= Ø.8	
M(M,T)=	Ø.Ø234	* V= Ø.9	

x

