

Calculation of e

| Calculation of e | | | | |
|------------------|--|--|--|-------|
| | | | | |
| Next... | | | | Init. |

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C A L C U L A T I O N   O F   E
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Calculation of e (2.718281828...)
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$$e = 1 + \frac{1}{1!} + \frac{1}{2!} + \frac{1}{3!} + \frac{1}{4!} + \dots + \frac{1}{n!} + \dots$$

| Step | Procedure | Keys | Display |
|------|-----------|------|---------|
| 1 | Init. | E | 2 |
| 2 | Next... | A | 2.--- |

Repeat n times step 2.

More larger is n , more the result approaches e

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$$\begin{array}{c} \begin{array}{cccc} \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} & \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \hline \end{array} \quad \begin{array}{c} \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \hline \end{array} \quad \begin{array}{c} \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \hline \end{array} \quad \begin{array}{c} \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \begin{array}{|c|} \hline \diagup \overline{\quad} \diagdown \\ \hline \end{array} \\ \hline \end{array} \end{array}$$

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// ##### INIT #####
LBL E 1 0 STO 07
LBL TAN 2 STO 08 5 STO 03
LBL GRD 5 STO 09 0 STO 02
LBL DEG 0 STO 04 RCL 08 1 - 5 * RCL 09 + RCL 07 INV X=Y COS
1 7 STO 04
LBL COS 5 RCL 09 - INV LOG X2 RCL 04 * SUM 02 DSZ 09 DEG
OP 33 RCL 02 OP* 03 DSZ 08 GRD
OP 55 DSZ 07 TAN
CMS OP 59 D' C' D' 1 STO 04

// ##### METHOD 1 #####
LBL A 1 SUM 02 RCL 02 PRT STO 00 SBR X2 1 [E] RCL 01 / SUM 04 RCL 04
PRT E' RCL 04 R/S
LBL X2 1 STO 01
LBL SQR RCL 00 PRD 01 DSZ 00 SQR
RTN

// ##### TITLE #####
LBL C' OP 00 01 05 OP 01 01 03 02 07 01 05 04 01 02 07 OP 02 01 03
03 07 02 04 03 02 03 01 OP 03 00 00 03 02 02 01 00 00 01 07 OP 04 OP
05 RTN

// ##### EQUAL LINE #####
LBL D' OP 00 06 04 OP 01 06 04 06 04 06 04 06 04 06 04 OP 02 OP 03
OP 04 OP 05 RTN

// ##### DASHED LINE #####
LBL E' OP 00 02 00 OP 01 02 00 02 00 02 00 02 00 02 00 OP 02 OP 03
OP 04 OP 05 RTN

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| L A B E L S |
|-------------|
| 001 15 E |
| 007 30 TAN |
| 015 80 GRD |
| 023 60 DEG |
| 046 39 COS |
| 086 11 A |
| 112 33 X2 |
| 117 34 SQR |
| 127 18 C' |
| 174 19 D' |
| 201 10 E' |

| Adr | Branch. |
|-----|------------|
| C' | 080 18 C' |
| COS | 039 67 X=Y |
| D' | 079 19 D' |
| D' | 081 19 D' |
| DEG | 059 97 DSZ |
| E' | 107 10 E' |
| GRD | 068 97 DSZ |
| SQR | 122 97 DSZ |
| TAN | 073 97 DSZ |
| X2 | 095 71 SBR |

| Reg. | Instr. |
|------|--|
| 00 | 093 42 STO 118 43 RCL |
| 01 | 099 43 RCL 114 42 STO 120 49 PRD |
| 02 | 020 42 STO 057 44 SUM 064 43 RCL 088 44 SUM 090 43 RCL |
| 03 | 012 42 STO |
| 04 | 025 42 STO 043 42 STO 054 43 RCL 083 42 STO 102 44 SUM 104 43 RCL 108 43 RCL |
| 07 | 004 42 STO 036 43 RCL |
| 08 | 009 42 STO 027 43 RCL |
| 09 | 017 42 STO 033 43 RCL 048 43 RCL |