Q Evaluate 2^10, 3^10, 4^10

(%i3)  2 ^ 10 ;
     3 ^ 10 ;
     4 ^ 10 ;

(%o1)   1024

(%o2)   59049

(%o3)   1048576

Q find the value of $10\pi$ upto 100 decimal places

(%i4)  bfloat ( 10 · $\pi$ ) , fpprec : 100 ;

(%o4)   3.14159265358979323846264338327950288419716939937510582097494459230781640628620899862803482534211706$8b1$

Q Let M = [[1, 2, 3],
[3, 2, 1],
[1, 1, 1]]
find M+M, M.M, M^3, [1, 0, 1].M

(%i5)  M : matrix ( [ 1 , 2 , 3 ] , [ 3 , 2 , 1 ] , [ 1 , 1 , 1 ] ) ;

(%o5)   $\begin{pmatrix} 1 & 2 & 3 \\ 3 & 2 & 1 \\ 1 & 1 & 1 \end{pmatrix}$

(%i6)  M + M ;

(%o6)   $\begin{pmatrix} 2 & 4 & 6 \\ 6 & 4 & 2 \\ 2 & 2 & 2 \end{pmatrix}$

(%i7)  M . M ;

(%o7)   $\begin{pmatrix} 10 & 9 & 8 \\ 10 & 11 & 12 \\ 5 & 5 & 5 \end{pmatrix}$

(%i8)  M ^ ^ 3 ;

(%o8)   $\begin{pmatrix} 45 & 46 & 47 \\ 55 & 54 & 53 \\ 25 & 25 & 25 \end{pmatrix}$

(%i9)  [ 1 , 0 , 1 ] . M ;

(%o9)   ( 2   3   4 )

Q Find $\sin^2(\pi/4)$

(%i10)  sin ( %pi / 4 ) ^ 2 ;

(%o10)   $\dfrac{1}{2}$

Q Find 8C4

(%i11)  binomial ( 8 , 4 ) ;

(%o11)  70

 Q Find factors of 80

(%i12)  factor ( 80 ) ;

(%o12)  $2^4 5$

 Q Find next and previous prime of 2020

(%i13)  next_prime ( 2020 ) ;

(%o13)  2027

(%i14)  prev_prime ( 2020 ) ;

(%o14)  2017

 Q Find 10P3

(%i15)  load ( functs ) $
(%i16)  permutation ( 10 , 3 ) ;

(%o16)  720

 Q Find 10Πi=1 i^3 and nΣi=1 i^3

(%i17)  prod ( i ^ 3 , i , 1 , 10 ) ;

(%o17)  47784725839872000000

(%i19)  simpsum : true $
         sum ( i ^ 3 , i , 1 , n ) ;

(%o19)  $\dfrac{n^4 + 2n^3 + n^2}{4}$

 Q Find numeric value of e²

(%i20)  %e ^ 2 , numer ;

(%o20)  7.38905609893065

 Q Find the remainder when 193 divided by 7

(%i21)  mod ( 193 , 7 ) ;

(%o21)  4

 Q Let f(x)= x³ + log(x), find f(1)

(%i22)  f ( x ) : = x ^ 3 + log ( x ) ;

(%o22)  $f(x) := x^3 + \log(x)$

(%i23)  f ( 1 ) ;

(%o23)  1

 Q Find the derivative of x³ + log(x) + e^x

(%i24)  diff ( x ^ 3 + log ( x ) + %e ^ x , x ) ;

(%o24)  $\%e^x + 3x^2 + \dfrac{1}{x}$

Q Find the double derivative of the above function and also find the integral between 0 to 1 of the above function

(%i25)  diff ( x ^ 3 + log ( x ) + %e ^ x , x , 2 ) ;

(%o25)  $\%e^x + 6x - \dfrac{1}{x^2}$

(%i26)  integrate ( x ^ 3 + log ( x ) + %e ^ x , x , 0 , 1 ) ;

(%o26)  $\dfrac{4\%e - 7}{4}$

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