

> # Attendance Question 1, who was sir ronald ross? why was he famous
 Ronald Ross was a Medical Doctor
 and researcher who demonstrated the life cycle of the malaria virus in mosquitos
 . For this he was the first British Nobel laureate in 1902 for Physiology or Medicine.

Attendance Question 2, Copy and paste maple code

```
a := proc(n) :
if n = 0 then
0 :
elif n = 1 then
1 :
elif n = 2 then
4 :
else
3 * a(n-1) - 3 * a(n-2) + a(n-3) :
fi:
end:
```

a(100);
#i stopped it at 274.59s but i get the point! The other day doing the homework I tried to do a plot which plots all the p values on the interval .001 from 0 to 1.5, and a similar run time situation happened and it ended up corrupting my file as I could not save it or halt the current operation!

>

#Attendance Question 3, use ruid solve diff eq

#My ruid number is 166002193

#USE MAPLE TO solve the differential equation $y'(t) = \frac{0 \cdot t^6}{y^6}, y(1) = 6$.

```
dsolve( { diff(y(t), t) =  $\frac{0 \cdot t^6}{y^6}, y(1) = 6$  }, y(t) );
```

$y(t) = 6$

(1)

> # Attendance Question 4,

```
# a1:=father age
# a2:=mother age
# a3:=younger sibling's age
# Let A be the 3 by 3 matrix [[a1,a2,a3],[a2,a3,a1],[a3,a2,a1]]
```

find (float) the SECOND largest eigenvalue (in absolute value) and the corresponding eigenvector

```
with(LinearAlgebra);
```

[&x, Add, Adjoint, BackwardSubstitute, BandMatrix, Basis, BezoutMatrix, BidiagonalForm, BilinearForm, CARE, CharacteristicMatrix, CharacteristicPolynomial, Column, ColumnDimension, ColumnOperation, ColumnSpace, CompanionMatrix, CompressedSparseForm, ConditionNumber, ConstantMatrix, ConstantVector, Copy, CreatePermutation, CrossProduct, DARE, DeleteColumn, DeleteRow, Determinant, Diagonal, DiagonalMatrix, Dimension, Dimensions, DotProduct, EigenConditionNumbers, Eigenvalues, Eigenvectors, Equal, ForwardSubstitute, FrobeniusForm, FromCompressedSparseForm, FromSplitForm, GaussianElimination, GenerateEquations, GenerateMatrix, Generic, GetResultDataType, GetResultShape, GivensRotationMatrix, GramSchmidt, HankelMatrix, HermiteForm, HermitianTranspose, HessenbergForm, HilbertMatrix, HouseholderMatrix, IdentityMatrix, IntersectionBasis, IsDefinite, IsOrthogonal, IsSimilar, IsUnitary, JordanBlockMatrix, JordanForm, KroneckerProduct, LA_Main, LUdecomposition, LeastSquares, LinearSolve, LyapunovSolve, Map, Map2, MatrixAdd, MatrixExponential, MatrixFunction, MatrixInverse, MatrixMatrixMultiply, MatrixNorm, MatrixPower, MatrixScalarMultiply, MatrixVectorMultiply, MinimalPolynomial, Minor, Modular, Multiply, NoUserValue, Norm, Normalize, NullSpace, OuterProductMatrix, Permanent, Pivot, PopovForm, ProjectionMatrix, QRdecomposition, RandomMatrix, RandomVector, Rank, RationalCanonicalForm, ReducedRowEchelonForm, Row, RowDimension, RowOperation, RowSpace, ScalarMatrix, ScalarMultiply, ScalarVector, SchurForm, SingularValues, SmithForm, SplitForm, StronglyConnectedBlocks, SubMatrix, SubVector, SumBasis, SylvesterMatrix, SylvesterSolve, ToeplitzMatrix, Trace, Transpose, TridiagonalForm, UnitVector, VandermondeMatrix, VectorAdd, VectorAngle, VectorMatrixMultiply, VectorNorm, VectorScalarMultiply, ZeroMatrix, ZeroVector, Zip]

(2)

> A := Matrix([[67, 55, 0], [55, 0, 67], [0, 55, 67]])

$$A := \begin{bmatrix} 67 & 55 & 0 \\ 55 & 0 & 67 \\ 0 & 55 & 67 \end{bmatrix}$$

(3)

> evalf(Eigenvalues(A));

$$\begin{bmatrix} 122. \\ -55. \\ 67. \end{bmatrix}$$

(4)

> evalf(Eigenvectors(A));

$$\begin{bmatrix} -55. \\ 122. \\ 67. \end{bmatrix}, \begin{bmatrix} 1. & 1. & -1.218181818 \\ -2.218181818 & 1. & 0. \\ 1. & 1. & 1. \end{bmatrix}$$

(5)

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