16 July 2018 individual task in calculus:

Edited at 1pm 16.7.2018.

1. Solve the differential equation Ty'' + my' + Ly = cos(kx), y(0) = 0, y'(0) = 1.

https://www.emathhelp.net/calculators/differential-equations/differential-equation-calculator/?i=67\*y%27%27%2B+32\*y%27+%2B+11\*y%3Dcos%289000\*x%29%2C+y%280%29%3D0%2C+y%27%280%29%3D1

2. Solve the linear and non-linear real projectile problems for A = T degrees, V = T, R = 1/T.

Linear:

Going up:

x'' + Rx' = 0

y'' + Ry' = -g

Going down:

x'' - Rx' = 0

y'' - Ry' = -g

https://www.grc.nasa.gov/www/k-12/airplane/flteqs.html

http://farside.ph.utexas.edu/teaching/336k/Newtonhtml/node29.html

Non-linear:

Going up:

x'' + R(x')2 = 0

y'' + R(y')2 = -g

Going down:

x'' - R(x')2 = 0

y'' - R(y')2 = -g

g = 10

x(t)

y(t)

t = time

R = Drag

x(0) = 0

x'(0) = Vcos(A)

y(0) = 0

y'(0) = Vsin(A)

Check if Vsin(A) > 1/T. Explain.

How can you assess the solution for drag R if you have solution for case R = 0?

http://www.wolframalpha.com/widgets/view.jsp?id=e602dcdecb1843943960b5197efd3f2a

https://www.emathhelp.net/calculators/differential-equations/differential-equation-calculator/?i=y%27%27%2B+0.01\*y%27%3D-10%2C+y%280%29%3D0%2C+y%27%280%29%3D1

Using what we learned in our class, write essays and do the dabate.

Essays:

Write these essays:

3. Is modernity or tradition better?

4. How can we get to the best country?

5. What is the best help to Indonesia?

Debate:

6. Do debate.