UAS in physics made by Michael Marchenko in January of 2020.

1. Find the wavelength for v = k m/s and f = T Hz.

2. Calculate the compound errors for x = s, dx = 1/T; y = T, dy = 1/k.

3. Solve Ty'' + my' + Ly = sin(Tx). Is there resonance? Ty'' + Ly = sin(ωx). Find resonant ω.

4. Find velocity and acceleration for one-dimensional motion with the equation x = -k + Lt + Tt2.

5. Find angular velocity and linear acceleration for v = T m/s and R = k meters.

6. Find velocity and acceleration at T degrees latitude. Earth Radius = 6371.009km.

7. Add, subtract and multiply the vectors (T,k) and (L,s).

8. How many significant figures are there in your T number?

9. Describe your project. Find $R=\frac{ρL}{A}. $ A = m25. ρ = m17. L = m10.

10. Give period of spring oscillator $T=2π\sqrt{\frac{m}{k}}$ and period of pendulum $T=2π\sqrt{\frac{L}{g}}$.

11. Give interference equation for sin(ω(t – x/v)) and sin(L + ω(t – x/v)). L = m10.

12. Ed = V (uniform field strength (electric field)). E = m8. d = d2.

13. F = Eq (field and force (electricity)). E = m8. q = m17.

14. Give P from PV = nRT. R = 2 + m25. V = 3 + m35. n = s.

15. Analyze projective motion of V0 = T m/s, A = T degrees.

16. Find λ. λD = ax in Young double-slit experiment. D = 2 + d2. a = 2 + m25. x = 3 + m35.

17. Give λ. d sinA = nλ for diffraction grating. d = 2 + d2. A = 2 + m25. n = s.