3 group physics task:

Edited at 5am 25.11.2017.

1. What is physics?

https://en.wikipedia.org/wiki/Physics

2. Why do we need physics?

https://en.wikipedia.org/wiki/Physics

3. Explain significant figures.

https://en.wikipedia.org/wiki/Significant\_figures

4. What are the Atlantic Rule and the Pacific Rule of calculating the number of significant figures?

5. How many significant figures are in this number 0.0000066750000?

6. Define accuracy and precision.

https://en.wikipedia.org/wiki/Accuracy\_and\_precision

7. What is a systematic error?

8. Show how to calculate compound error for the sum, difference, product and quotient.

9. How is bias related to accuracy?

10. Link kurtosis to precision. Link systematic error to accuracy.

11. Give the 7 base units.

12. What is kinematics?

13. Give the main equation for the kinematics in one dimension.

14. What is a vector?

15. Add, subtract and multiply the vectors (2, 8) and (3, -7).

16. Write the equations for the projectile motion in two dimensions.

17. Explain the projectile problem.

18. Find x and y for projectile with x0 = y0 = 0, v0 = 88 m/s, t = 88 seconds, A = 88 degrees.

Find maximum distance and maximum height.

19. Give equations of kinematics of rotation.

20. Find angular velocity and linear acceleration for v = 88 m/s and R = 89 meters.

21. What is the linear velocity in Indonesia due to the rotation of the Earth?

22. What are orbital, escape velocities and black hole?

23. What is geostationary orbit?

24. Explain Kepler Laws.

25. What is Archimedes Law?

26. What is Bernoulli Law?

27. Explain Magnus effect.

28. Explain the thermal expansion.

29. What is thermal balance?

30. Solve the simplified Maxwell Equations for c = 200000000.

Find the intensity of electric field after 88 seconds at 89 meters.

31. Find the force between two charges of 88 and 89 Coulombs for the distance apart of m meters.

32. Find V1 for the transformer if V2 = 111 volts, N1 = 9999 and N2 = 99999999999.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/transformer.txt

33. Calculate the series and the parallel circuits with e.m.f. of T111Volts and the resistors 1, 2 and 3 ohms respectively.

http://physics18.weebly.com/uploads/5/9/8/5/59854633/series\_parallel\_circuits.txt

34. Find the electrical current i in the circuit for R = 11, L = 1/9999, C = 1/999999999, ω = 9999, and εm = 1111.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/2054\_ch21a.pdf

35. For convex mirror with a radius of curvature of 22 meters, determine the location of the image and its magnification for an object 22 meters from the mirror.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/mirror.txt

36. Find the frequency and the period of the harmonic oscillator. L = 9999 μH and C = 111 μF.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/rlc4circuit4natural4frequency4period.txt

37. Suppose a star has a surface temperature of 4k degrees. What are the wavelength and the color this star appears?

http://physics16.weebly.com/uploads/5/9/8/5/59854633/color4black4body.txt

38. Find energy and momentum of photon of 99999999 Hz frequency.

39. Calculate the energy and momentum of a photon for Lambda = 33333 nanometers.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/energy4photon.txt

40. Determine the wavelength of an electron that has been accelerated through the potential difference of 111 Volts.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/wavelength4electron.txt

41. Calculate the wavelength of 9999 grams desk moving 111 centimeters per second.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/waves4matter.txt

42. What is the matter wave length of 111 gram book?

43. Find the energy level and angular momentum for hydrogen according to the Bohr Model.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/bohr.txt

44. Calculate the Schwarzschild radius for the 9999 grams desk.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/radius4schwarzschild.txt

45. Find the annihilation energy of k grams of matter.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/energy4binding.txt

46. Calculate the remaining mass (it is NOT 0) of the decaying substance after k seconds if the decay ratio is T and initial mass is s. Calculate the half-life.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/code4nuclear4decay4half4life.txt

47. T kilowatts of electric power is sent to a town from a power plant. The transmission lines have the total resistance of 11 Ohms. Calculate the power loss if the power is transmitted at:

(a) 230 Volts (b) 99999999 Volts

http://physics16.weebly.com/uploads/5/9/8/5/59854633/losses4transmitting4power.txt

48. A circular coil of wire has a diameter of 9999 cm and contains 10 loops. The current in each loop is 3A, and the coil is placed into 2TESLA external magnetic field. Determine the maximum and minimum torque exerted on the coil by the field.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/torque.txt

49. A man 2000 mm tall stands in front of a vertical plane mirror. His eyes are 10 cm bellow the top of his head. What are the sizes and the best location of the smallest possible mirror so that he can see his entire body?

http://physics16.weebly.com/uploads/5/9/8/5/59854633/height4mirror.txt

50. A spy satellite camera can recognize 111 cm objects from the altitude of 99999999 meters. If diffraction was the only limitation (the wave length Lambda = 9999 nanometers), determine what diameter lens the camera has.

http://physics16.weebly.com/uploads/5/9/8/5/59854633/satellite4spying.txt

51. Perform correlation and regression analyses of the periodic table for 111 elements and for 11 elementary particles.

52. Try to apply for all grants, scholarships, fellowships, etc. in embassies of USA, Canada, Europe, Australia, Japan, etc.

Deadline: 30.11.2017.