2018 MYP Physics – Final Exam Review

Know your Vocabulary – **seriously**

Chapter 4

1. When is an object in equilibrium?
2. If you weigh 700N what is your mass? (What is the symbol for weight?)
3. Define Newton's 3 laws and give an example of each.
4. What is the difference between static and kinetic friction? (Give an example of each)
5. Two people are pulling on a rope in opposite directions. One pulls to the left with a force of 50N and the other pulls to the right with a force of 75N. What is the net force?
6. A 35kg child slides down a slide at an angle of 40 degrees. What are the components of the child's weight?
7. A 2kg pitcher of lemonade is sitting on a table that is at an angle of 20 degrees. What is the normal force?
8. A 60kg basket hangs from the roof by two ropes that each makes an angle of 50 degrees with the roof.
9. What is the magnitude of the tension force on each rope?

Chapter 5

1. A child pulls a toy across an icy road with a force of 1N at an angle of 35 degrees. How much work does the child exert on the toy?
2. Find the kinetic energy of a 250g football that is thrown at 10 km/h.
3. A worker drops a 5kg wrench from a roof that is 25m high. What its potential energy?
4. How much elastic potential energy is stored in a rubber band that has a spring constant of 10 N/m with an un-stretched length of 25 cm and is stretched to a length of 50 cm?
5. How much power does a 5kg cat have if it runs up a 10m high tree in 5s?
6. A 700N diver jumps from a board that 20m above the water. What is the diver's speed at 10m? What is it right before he hits the water?

Chapter 6

1. Which has greater momentum a 1000kg car moving at 50m/s or a 2000kg truck moving at 10m/s?
2. A 90kg person gets into a 200kg boat that is at rest. If the initial velocity of the fisherman is 5m/s to the right, what is the final velocity of the person and the boat?
3. What is conserved in an elastic collision? in an inelastic collision?

Chapter 7

1. What happens to orbital speed and period of a planet if the Sun's mass changes?
2. What happens to orbital speed and period of a planet if the planet's mass or distance changes?
3. How does one maximize torque?
4. Identify Kepler's Laws and Newton's Law of Gravitation.
5. Know Centripetal motion, Universal law of gravitation problems, associated terms & concepts
6. Torque equation and how to increase Torque
7. How to use Torque for equilibrium problems (like see-saw)

Chapter 11-12

1. What is a mechanical wave?
2. What is elastic potential energy?
3. Know the Doppler effect
4. What type of wave is sound?
5. Know how to use Hooke's Law
6. Know the relationships between Frequency, Wavelength and Period
7. Know how to find the period of a pendulum & the period of a block on a spring
8. Know the parts of a wave, including terms like pitch, interference and beats
9. Know the formulas for sound harmonics

Chapter 13-14

1. Know the differences between refraction and reflection.
2. What's the nature of virtual/real images?
3. Know where the image ends up for the mirror and lens
4. Know the relationship between focal length, radius of curvature, image size and position for lenses/mirrors
5. Know the primary/secondary colors
6. Polar filters block about half of light
7. Know how to use Snell's Law
8. Know speed of light equation