

Quiz Content 9/26

Newton's 1st Law: Understand when forces are balanced and unbalanced

Given forces, know when an object remains at rest, when it moves with constant velocity, and when it moves with a constant acceleration

Newton's 2nd Law: Know acceleration is proportional to force (as force increases, acceleration increases) and inversely proportional to mass (mass increases, acceleration decreases)

Be able to calculate any value given the other two : $\Sigma F = ma$

Newton's 3rd Law: Identify action-reaction pairs and when two forces are not an action-reaction pair

Lectures 1,2,3 on website

HW WS1, 3, 4, 5

WS3 #13,14,15

13. The earth doesn't move because it has a large mass/ inertia. Even though the ball exerts an equal force on the Earth as the Earth does on the ball, it would take a huge amount of force to actually observe the Earth's acceleration.

14. Treat the rocket and the rocket's gases as separate objects – the rocket pushes on the gases, and the gases push back on the rocket, causing the rocket to accelerate

15. The boats will meet at point B – the person and the rowboat #1 have a total mass of 130 kg, and the rowboat #2 being pulled has a mass of 60 kg. If the force of the pull on #2 is = the force of the pull on #1, #2 will have a greater acceleration because it has less mass – #1 has a greater mass and a smaller acceleration. Therefore they meet at point B.