**Newton's Second Law**

|  |  |
| --- | --- |
|  | F = ma, plus kinematics: |
| 4 m/s/s | 1. What is the acceleration of a 4.5 kg mass when there is a net force of 18 N on it? |
| 32 Kg | 2. A space worker exerts a net force of 256 N on an object and it accelerates at 8 m/s/s. What is the mass of the object? |
| 750 N | 3. Sally accelerates a 250 Kg cart at 3 m/s/s. What must be the net force? |
| 21.5 grams | 4. What must be the mass of a model rocket in grams to develop an acceleration of 520 m/s/s when subjected to a net force of 11.2 N |
| 10,500 N | 5. What force can stop a 1400 Kg truck traveling at 30. m/s in 4.0 seconds? |
| 210,000 N | 6. What force can stop a 1400 Kg truck traveling at 30. m/s in 3.0 m? |
| 1100 Kg | 7. A car can go 60. m from rest in 4.5 seconds. If a net force of 6500 N acted on the car what is its mass? |
|  | Mass vs. Weight (weight = mg) |
| 588 N | 8. How much does a 60.0 Kg person weigh on earth? |
| 3.84 N | 9. How much does a 392 g object weigh on earth? |
| 73 Kg | 10. What is the mass of an object that weighs 720 N on the surface of the earth? |
| 4.0 N/Kg | 11. What is the strength of the gravitational field around a planet where a 45 Kg object weighs 180 N? |
| 4.0 m/s/s | 12. What is the acceleration of an object that weighs 19.6 N (on earth) when there is a net force of 8.0 N acting on it? |