

Name: _____ Period: _____ Date: _____

Newton's 2nd Law

1. What force is needed to accelerate a 45kg object at a rate of 7m/s^2 ?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

2. At what rate will a 75kg object accelerate if a force of 225N is applied?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

3. A girl on roller skates accelerated at a rate of 2m/s^2 using a force of 100N. What is her mass?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

4. How large is a mass if a force of 65N can push it at a rate of 1m/s^2 ?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

5. An 80N force is used to accelerate a 10kg mass. What rate of acceleration is achieved?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

6. What force is needed to accelerate a 63kg object at a rate of 4 m/s^2 ?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

7. A force of 650N is applied to an object. If it accelerates at a rate of 5 m/s^2 , what is the mass of the object?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

8. What is the force on a 1kg ball that is falling freely due to gravity (9.8 m/s^2)?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

9. What is the mass of a person who weighs 500N?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

10. What is the weight of an object (on earth) that has a mass of 45kg?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

11. The acceleration due to gravity on the moon is 1.6 m/s^2 . What is the weight of a 75kg astronaut on the moon?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

12. A space ship is launched to a far away planet. Its mass is 9,000kg. If it lands on this planet and experiences a force of 390,000N, what is the acceleration due to gravity on this planet?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

13. One of the football defensive backs tips the scales at a whopping 1250N. What is his mass?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

14. Peter was born with a mass of 3.5Kg, what was his weight?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

15. By his 1-month checkup, he weighed 60.5N, what was his mass?

Given:	Formula	Substitution	Answer & Units
f = m = a =			

16. The new office elevator can hold 300kg at once. If John (850N), Betty (520N), Robert (740N), and Alice (610N) all get into the elevator at once, **can the elevator safely operate to get them to the 3rd floor?** (hint: is the combined mass more or less than the 300kg the elevator holds?)

Given:	Formula	Substitution	Answer & Units
f = m = a =			

