

4.1 Quizlette - Newton's Second Law (turn this in)

Name \_\_\_\_\_

**F = ma:**

1. What **net force** would accelerate a 2.50 kg mass at a rate of 27.6 m/s/s?

2. What **mass** accelerates at 6.50 m/s/s when a force of 87.0 N acts on it?

3. What is the **acceleration** of a 9.10 kg mass if there is a net force of 3.50 N acting on it?

**(weight)  $F_g = mg$ :** (Use  $g = 9.81 \text{ N/kg}$  - round to three digits total)

4. What is the **weight** on earth of a 60.0 kg boy named Brennen?

5. What **mass** on earth weighs 730. N?

6. A 45.0 kg mass weighs 73.0 N on the moon. What is the "**g**" (The gravitational field strength) of the moon?

1) 69.0 N, 2) 13.4 kg, 3) 0.385 m/s/s, 4) 589 N, 5) 74.4 kg, 1.62 N/kg

**Kinematics then  $F = ma$ :**

7. What **net force** would accelerate a 6.80 kg mass from rest a distance of 24.0 m in 5.00 s?

8. A 72.0 kg mass accelerates from 5.70 m/s to 18.0 m/s in 4.00 s. What **net force** acted?

9. A 12.0 kg mass accelerates from 6.20 m/s to 15.0 m/s over a distance of 21.0 m. What **net force** acted?

7) 13.1 N, 8) 221 N, 9) 53.3 N, 10) 42.0 m/s, 11) 3.95 s, 12) 35.6 m

**$F = ma$  then Kinematics:**

10. A 24.0 N net force acts on a 8.00 kg mass. If it accelerates from rest, what is the **final velocity** in 14.0 s?

11. A net force of 26.0 N acts on a 3.80 kg mass. After what **time** would the mass reach a speed of 27.0 m/s from rest?

12. A net force of 36.0 N acts on a 8.50 kg mass. What will be its **displacement** from rest if it accelerates for 4.10 s?