

Name

Date

# 67 Newton's 2<sup>nd</sup> Law Practice $F = ma$

1) How much net force would be needed to cause a 10 kg mass to accelerate at  $3 \text{ m/s}^2$ ?

2) How much net force would be needed to cause a 15 kg mass to accelerate at  $7 \text{ m/s}^2$ ?

3) A 100 kg mass accelerates at  $10 \text{ m/s}^2$ . What net force was used?

4) A 40 N net force is applied to a 5 kg object. What is its acceleration?

5) A 70 N net force is applied to a 20 kg object. What is its acceleration?

- 6) A 90 N net force is applied to a 2.5 kg object. What is its acceleration?
- 7) If a 50 N force causes an object to accelerate at  $2 \text{ m/s}^2$ , what is the object's mass?
- 8) If a 75 N force causes an object to accelerate at  $5 \text{ m/s}^2$ , what is the object's mass?
- 9) If a 10 N force causes an object to accelerate at  $50 \text{ m/s}^2$ , what is the object's mass?
- 10) A 100 N force is applied to an object and a 20 N force of friction works against it. If the object has a mass of 5 kg, what is its acceleration?

- 11) A 300 N force is applied to an object and a 70 N force of friction works against it. If the object has a mass of 20 kg, what is its acceleration?
- 12) An 80 N force is applied to an object and a 15 N force of friction works against it. If the object has a mass of 10 kg, what is its acceleration?
- 13) A 90 N force is applied to an object and a 30 N force of friction works against it. If the object accelerates at  $5 \text{ m/s}^2$ , what is its mass?

14) A 120 N force is applied to an object and a 40 N force of friction works against it. If the object accelerates at  $15 \text{ m/s}^2$ , what is its mass?

15) A 5 N force is applied to an object and a 2 N force of friction works against it. If the object accelerates at  $0.02 \text{ m/s}^2$ , what is its mass?

Answers: 1) 30 N 2) 105 N 3) 1000 N 4)  $8 \text{ m/s}^2$  5)  $3.5 \text{ m/s}^2$  6)  $36 \text{ m/s}^2$  7) 25 kg 8) 15 kg  
9) 0.2 kg 10)  $16 \text{ m/s}^2$  11)  $11.5 \text{ m/s}^2$  12)  $6.5 \text{ m/s}^2$  13) 12 kg 14) 5.3 kg 15) 150 kg