Part B: The Newton's Second Law Formula

While studying kinematics, we study acceleration. Newton's Second Law helps us explain *why* acceleration happens.

$$\Sigma F = ma$$

Symbol	Quantity	SI Unit
ΣF	Net force	Newtons
m	Mass	Kilograms
a	acceleration	m/s^2

B.1. I kick and exert a net force of 200 N on a rock. The rock has a mass of 2 kg. What will be its acceleration?

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.2. Something is accelerating at a rate of 4 m/s^2. It has a mass of 10 kg. What is the net force on this object?

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.3. The cabinet has a mass of 200 kg and I push it with a force of 20 N. That is the only horizontal force on the cabinet. What is its acceleration? *Include the unit!*

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.4. An 80 kg person on a 20 kg bicycle is accelerating at 2 m/s^2. What is the net force on them?

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.5. When I exert a 100 N net force on my bookshelf, it accelerates at a rate of 4 m/s^s. What is the mass of the bookshelf?

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.6. A rocket has a mass of 1800 kg. If the rocket thruster gives it a net force of 36000 N, how fast will it accelerate?

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

B.7. What is the mass of an object with an acceleration of 5 m/s^2 under a net force of 400 N? *Include the unit!*

Looking For	Formula	
Already Know		
Answer in a complete sentence *with unit*:		

Answers:

B.1
100 m/s^2

B.2
40 N

B.3
0.1 m/s^2

B.4
200 N

B.5
25 kg

B.6
20 m/s^2

B.7
80 kg