Year 10 Science: Forces and acceleration: F = ma, inertia and force pairs

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. A 1200 kg car has a net forward force of 3600 N on it. What is its acceleration?

2. A cyclist and bike have a total mass of 80 kg and accelerate at 1.5 m/s². What net force is acting?

3. A 2 kg trolley is pulled with 10 N while friction acts against it with 4 N. Find the net force and the acceleration.

4. A swimmer pushes on the pool wall with 300 N. What force does the wall put on the swimmer, and why does the wall not move noticeably?

5. A ball bearing is dropped into a tall tube of cooking oil. Its speed rises at first, then stays steady. Explain this using forces.

Fix the mistake

6. Correct this statement: "If something is moving, there must be a net force pushing it forward."

7. Correct this statement: "The trolley has a 100 N push, so a = 100 ÷ 40 = 2.5 m/s²."

8. Correct this statement: "Action and reaction forces cancel out, so nothing can accelerate."

9. Correct this statement: "In a tackle, the heavier player pushes harder on the lighter one."