YEAR 09

Physics Homework 01

Section 9Ia **Forces and movement**

p. 130 Questions: 2, 3, 4 & 5

2. Look at photo C. Write down the force that:

a) is caused by gravity

b) is helping to make the boat go forward

c) will increase if the speed of the boat increases

a) its **weight**

b) the **force of the wind** pushing the sails

c) the **water resistance**

3. The weight of the boat in photo C is 2000 N. How big is the upthrust? Explain your answer.

By the look of Figure C, the upthrust is equal and opposite to the weight so its **2000 N** as well.

4. Explain what will happen to the speed of the boat if the wind gets stronger.

As seen at Figure C the forces on the boat are balanced both in the horizontal and the vertical axis. If the wind gets stronger, it will push further the sails and the **forward force will become greater than the water resistance**. So the boat will **accelerate forwards**.

5. Explain why a sailing boat will slow down if the wind speed gets less.

Similarly to Question 4, if the wind drops, the **water resistance now will be greater** so the boat will **decelerate**.