

Answer **all** the questions in the spaces provided.

- 1 A propeller driven boat of mass 800 kg is traveling in still water in a straight line. When the boat is moving at a constant speed of 15 m s^{-1} , the power delivered to the propeller is 90 kW.

(a) Calculate the total resistive force on the boat.

total resistive force = N [2]

- (b) If the power delivered is then suddenly increased to 120 kW, determine the initial acceleration of the boat.

initial acceleration = m s⁻² [2]

- (c) Explain how the acceleration will vary over time as the power is maintained at 120 kW.

[4]