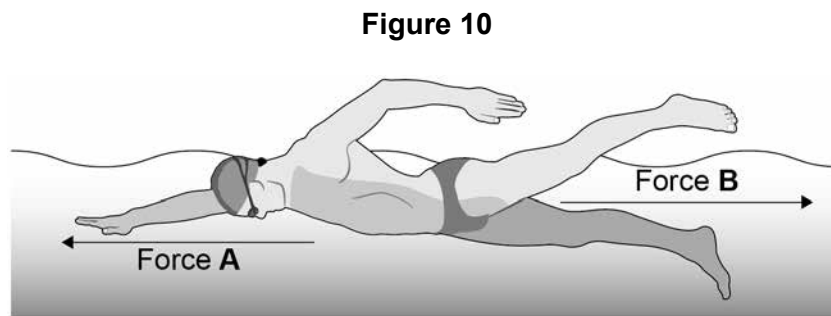


0 7

Figure 10 shows the horizontal forces acting on a man swimming in the sea.



0 7 . 1

Describe the movement of the man when the resultant horizontal force is 0 N

[1 mark]

0 7 . 2

The man increases Force **A**.

Explain what happens to Force **B** and to the movement of the man.

[4 marks]



0 7 . 3

A boat moves through the sea.

There is a 3000 N force to the west on the boat.

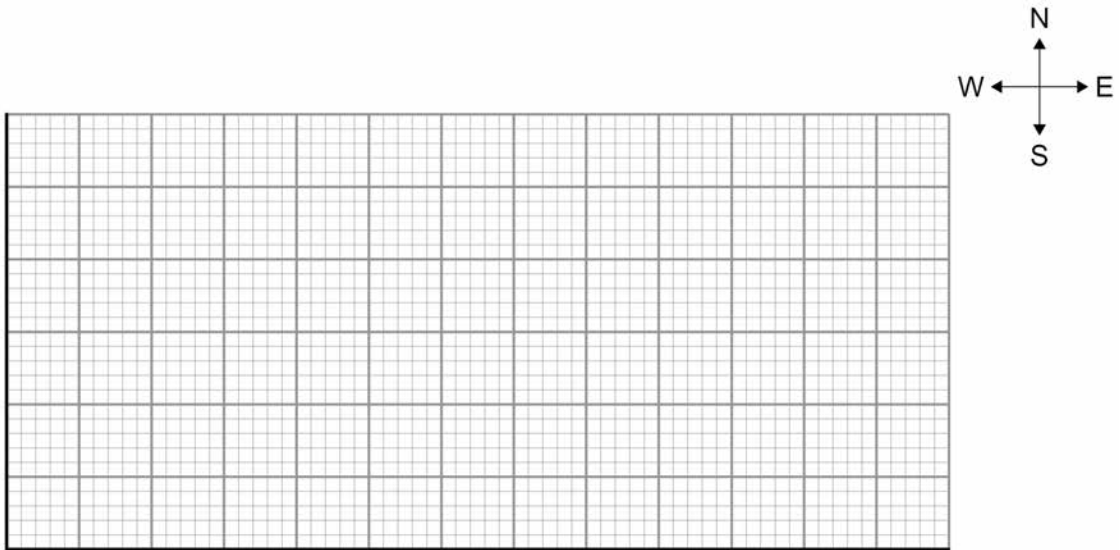
There is a 1000 N force to the south on the boat.

Determine the magnitude and direction of the resultant force on the boat.

Draw a vector diagram of these forces to scale on **Figure 11**

[3 marks]

Figure 11



Magnitude of resultant force = _____ N

Direction of resultant force = _____ °

0 7 . 4

The force to the south on the boat increases.


What effect does this have on the resultant force on the boat?

[2 marks]

END OF QUESTIONS

10



Question	Answers	Extra information	Mark	AO / Spec. Ref.
07.1	constant velocity	allow constant speed ignore references to stationary	1	AO1 6.5.4.2.1
07.2	the man will accelerate so force B increases until force B equals force A the man moves at a higher constant velocity	allow drag for force B allow until resultant force is 0 (N)	1 1 1 1	AO1 6.5.4.2.1
07.3	horizontal arrow pointing left (3000 N) and vertical arrow pointing down (1000 N) drawn to the same scale resultant force with a value in the range 3100 N–3200 N direction in the range 251°– 253° (clockwise from north)	 allow and answer of 3000 N if a scale diagram has been drawn using the cm squares allow 17°–19° (to the horizontal)	1 1 1	AO2 6.5.1.4
07.4	the magnitude will increase direction will change towards the south	allow size allow answers consistent with their response to question 07.3	1 1	AO1 6.5.1.4
Total			10	