

Contact and Non-Contact Forces

Question Paper

Level	GCSE (9-1)
Subject	Combined Science: Trilogy - Physics
Exam Board	AQA
Topic	6.5 Forces
Sub-Topic	Contact and Non-Contact Forces
Difficulty Level	Gold Level
Booklet	Question Paper

Time Allowed: 12 minutes

Score: /11

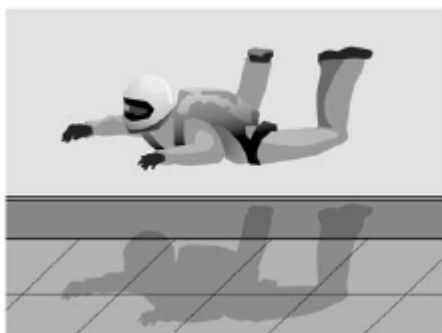
Percentage: /100

Grade Boundaries:

Q1.Figure 1 shows a skydiver training in an indoor wind tunnel.

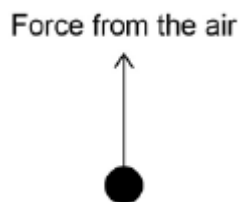
Large fans below the skydiver blow air upwards.

Figure 1



(a) The skydiver is in a stationary position.

Complete the free body diagram for the skydiver.



(2)

(b) The skydiver now straightens his legs to increase his surface area.

This causes the skydiver to accelerate upwards.

Explain why straightening his legs cause the skydiver to accelerate upwards.

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(2)

(c) A small aeroplane used for skydiving moves along a runway.

The aeroplane accelerates at 2 m / s^2 from a velocity of 8 m / s .

After a distance of 209 m it reaches its take-off velocity.

Calculate the take-off velocity of the aeroplane.

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Take-off velocity = m / s

(3)

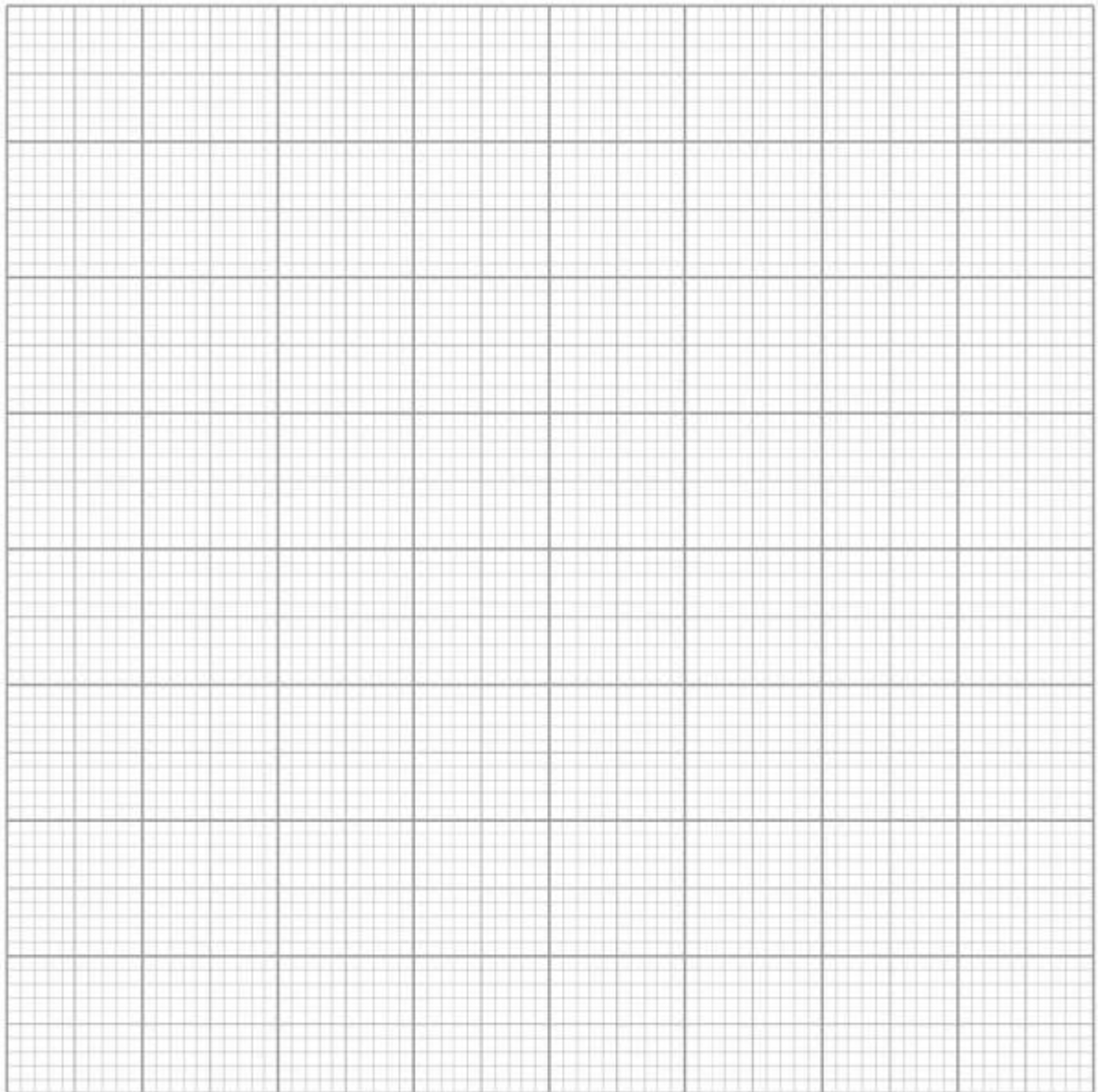
- (d) A skydiver jumps from an aeroplane.

There is a resultant vertical force of 300 N on the skydiver.

There is a horizontal force from the wind of 60 N.

Draw a vector diagram on **Figure 2** to determine the magnitude and direction of the resultant force on the skydiver.

Figure 2



Magnitude of resultant force = N

(5)
(Total 12 marks)