

Contact and Non-Contact Forces

Mark Scheme

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	Bronze Level
Booklet	Mark Scheme

Time Allowed: 42 minutes

Score: /40

Percentage: /100

Grade Boundaries:

M1.(a) C

1

(b) 2040 / 120

1

17 (m / s)

1

allow 17 (m / s) with no working shown for 2 marks

(c) the thinking distance and the braking distance combined
accept 36 m

1

(d) thinking distance increases

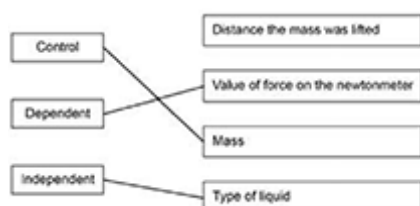
1

braking distance stays the same

1

[6]

M2.(a) Variable Description

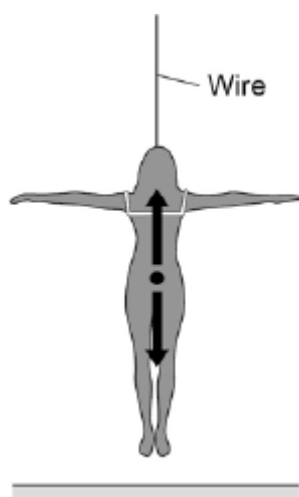


*allow **one** mark for each correct line
if more than one line is drawn from any variable then all of
those lines are wrong*

1

		1	
		1	
(b)	0.1 N		
	<i>if more than one box ticked apply list principle</i>	1	
(c)	A bar chart		
	<i>if more than one box ticked apply list principle</i>	1	
(d)	some of the data is categoric	1	
(e)	13.8×0.30	1	
	4.14	1	
	<i>allow 4.14 without working shown for 2 marks</i>		
	J	1	
			[9]

M3.(a)



arrow pointing vertically upwards

1

arrow pointing vertically downwards

1

(b) Gravitational force

*if more than **two** boxes ticked apply list principle*

1

Tension force

1

(c) 0 (N)

1

(d) weight = 70×9.8 (= 686)

1

weight = 690 (N)

1

*allow 690 (N) with no working shown for **2** marks*

*allow 686 (N) with no working shown for **1** mark*

(e) $34 \text{ (N)} / 30 \text{ (N)}$

allow ecf from 05.4 correctly calculated

1

(f) resultant force = mass \times acceleration

accept $F = ma$

1

accept equation correctly rearranged for a

(g) $25 = 65 \times a$

1

$a = 25 / 65$

1

$a = 0.38(4615\dots) \text{ (m / s}^2\text{)}$

1

allow $0.38 \text{ (m / s}^2\text{)}$ with no working for 3 marks

[12]

M4.(a) Gravity

1

(b) Mass of marble

1

(c) Drop height

1

(d) 31 (cm)

1

- (e) the result was anomalous
allow the result was too different from the other values 1
- (f) increasing the drop height increases the roll height 1
- (g) energy losses (due to friction)
allow air resistance, friction, drag 1
- [7]**
- M5.** (a) (i) horizontal arrow pointing to the left
judge by eye
drawn anywhere on the diagram 1
- (ii) 60 (N) 1
- (at steady speed) resultant force must be zero
accept forces must balance/are equal
accept no acceleration
*do **not** accept constant speed* 1
- (b) 1680
allow 1 mark for correct substitution, ie 60×28 provided no subsequent step shown 2

joule

accept J

do not accept j

1

[6]