

CAMBRIDGE INTERNATIONAL EXAMINATIONS

Cambridge Ordinary Level

MARK SCHEME for the May/June 2015 series

5054 PHYSICS

5054/42

Paper 4 (Alternative to Practical), maximum raw mark 30

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Page 2	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	5054	42

- 1 (a) (i) line marked from one shoe to same point on other shoe B1
- (ii) 40 to 90 cm OR 0.4 to 0.9 m max 2 sf unit required B1
- (iii) $100/(a)(ii)$ in m OR $10000/(a)(ii)$ in cm B1
- (b) (i) (push along ground and) count 100/200 clicks/turns B1
- (ii) sensible comment, e.g.
length of step/stride may vary/each 'click' exactly
50/100 cm/stride length only an estimate B1

[Total: 5]

- 2 (a) (i) 1.268 seen C1
1.27 s c.a.o. unit required A1
- (ii) large variation in raw data/data to 2 d.p.
time to fall varies B1
- (iii) allows time for parachute to inflate/larger times/more
repeatable/minimises percentage error in the time/
minimises the effect of (human) reaction error B1
- (iv) $441(.0)\text{cm}^2$, c.a.o. unit required correct precision B1
- (v) largest square from A4 sheet of paper/
sheet 21 (cm) wide/if greater area used, it won't be a square B1
- (b)(i)(ii) 441 and 1.27 in table with no unit ecf (a)(i) B1
400, 324, 256, 196, 144 c.a.o. ecf B1
- (iii) axes: correct way round, labelled quantity and unit B1
scales: more than $\frac{1}{2}$ grid, linear, not awkward B1
no scales of 3, 7 etc.
points plotted accurately within $\frac{1}{2}$ small square B1
best fit straight line drawn B1
- (iv) time needed to fall with no parachute B1

[Total: 13]

Page 3	Mark Scheme	Syllabus	Paper
	Cambridge O Level – May/June 2015	5054	42

3	(a) correct circuit symbols all components in a series circuit	B1
	(b) A and B labelled at ends of fixed resistor	B1
	(c) y-shift c.a.o. no additions	B1
	(d) (i) $3.2\text{ V} \pm 0.2$ unit required	B1
	(ii) dot moves up	B1
		[Total: 5]
4	(a) thermometer stopwatch / (stop-)clock / timer / watch	B1
	(b) diagram of test tube containing water thermometer with bulb in water eye drawn level with <u>top of thread</u> in thermometer	B1 B1
	(c) temperature / temp / T / θ AND time / t (or vice versa) $^{\circ}\text{C}$ / deg C / degree C AND second(s) / s / minutes / min	B1 B1
	(d) any two sensible points, e.g. timer close to test tube / see both together test tube in clamp stand thermometer in clamp stand thermometer with scale facing you two people with explanation (e.g. count down) clamp not obscuring the reading thermometer not touching the sides / bottom of test tube / $\frac{1}{3}$ or $\frac{1}{2}$ of thermometer immersed parallax avoided <u>qualified</u>	B2
		[Total: 7]