

Question number	Answer	Notes	Marks
8 (a)	(i) (unbalanced) force = mass \times acceleration;	allow rearrangements and standard symbols e.g. $F = m \times a$	1
	(ii) substitution OR rearrangement; evaluation; e.g. $49 = 45 \times a$ OR $a = F / m$ (a =) 1.1 (m/s ²)	allow 1.088... (m/s ²) reject 1.08 (m/s ²)	2
	(iii) any suitable suggestion; e.g. friction between snow / ground and sledge ground is not level towing rope / direction at an angle to the ground / direction of movement	allow air resistance, drag	1
(b)	(i) acceleration = <u>change</u> in velocity \div time (taken);	allow rearrangements and standard symbols e.g. $a = \Delta v \div t$ $a = v - u \div t$	1
	(ii) substitution AND rearrangement; evaluation to at least 2s.f.; e.g. $v = 1.3 \times 2.4 (+ 0)$ (v =) 3.1 (m/s)	$v = a \times t$ allow 3.12 (m/s)	2
(c)	(i) <u>area</u> under the line / graph;		1
	(ii) any three from: MP1. (constant) acceleration between 0 and A; MP2. constant velocity between A and B; MP3. constant deceleration / negative acceleration between B and C; MP4. deceleration is less than acceleration;	allow no acceleration	3

Total for question 8 = 11 marks