Question number	Answer	Notes	Marks
3 a i	newtons / N;	Reject n, Ns Allow Newtons	1
ii	any one of scales weighing scale electronic/electric balance newtonmeter;	newtonmetre	1
b	MP1. Record outline of foot; MP2. Attempt at evaluation of area; MP3. Detail of method of measurement; e.g. Draw round foot / feet Count / estimate the squares On squared / graph paper	Allow suitable alternatives dip foot into paint/ink and make footprint find area of rectangle around foot area of rectangle minus area of spaces around the foot use of ruler is insufficient for MP3	3
c i	Pressure = force / area;		1
ii	Substitution into correct equation; Evaluation; e.g. Pressure = $\frac{650}{270}$ 2.4	ACCEPT • rearranged equation • equation in recognised symbols Ignore triangle or units equation allow 2.41 or 2.4074 etc	1 1

(Total for Question 3 = 8 marks)

Question number	Answer	Notes	Marks
8 a	(surface) area;		1
b i	Any one from: volume of water; timing period;	Ignore conditions of the room	1 1
ii	any TWO from: MP1. (this variable) would affect heat loss; MP2. so wouldn't know which factor/variable mattered ; MP3. otherwise not fair test /results would not be valid / results would not be reliable;	allow description of how the variable would affect heat loss	1 1
c	ANY SUITABLE e.g. • care with hot water • container not near edge of table/bench • do experiment while standing	allow • gloves • goggles	
d i	31 40 28 25 ALL FOUR CORRECT = 2 -1 each mistake Minimum score = 0		2 1

ii	MP1. temperature (difference); MP2. (surface) area or time; MP3. relevant units on both;	X and Y unimportant	1 1
iii	Any TWO from: MP1. use water that is at the same starting temp; MP2. Pour in and wait until that temperature is reached before timing; MP3. method to ensure small time gap between pouring water and starting; MP4. put (same volumes into) containers in a water bath;	Accept sensible alternative workable method(s), allow two different methods e.g. do one at a time use other people to help	2

(Total for Question 8 = 12 marks)