

Question number	Answer	Notes	Marks
12 (a) (i)	94;		1
(ii)	any two sensible suggestions: e.g. <ul style="list-style-type: none"> <li>to make results (more) reliable;</li> <li>to produce an average reading;</li> <li>to identify anomalous results;</li> <li>because there may have been a temperature change;</li> <li>because there may have been friction in the syringe;</li> </ul>	ignore references to keeping it a fair test	2
(b) (i)	any sensible suggestion: e.g. <ul style="list-style-type: none"> <li>reduced scale gives fuller use of the grid;</li> <li>because the lowest value of <math>p</math> or <math>V</math> is 50/eq;</li> <li>because <math>p</math> or <math>V</math> cannot be zero;</li> </ul>	allow RA  ignore there are no values below 40	1
(ii)	idea of straight line having an even distribution of points about the line;  all points seem to be on the curve;	no mark for a bald 'it's the curve' or 'it's the line' allow points are very close to the curve	2
(iii)	any sensible suggestion; e.g. <ul style="list-style-type: none"> <li>keep the temperature constant</li> <li>ensure no air gets into/out of the syringe/eq</li> <li>keep apparatus exactly the same</li> <li>wait for same time after adding/removing loads to take the volume reading</li> </ul>		1
(iv)	any two from:  MP1. increase sensitivity/resolution of instruments;  MP2. take reading(s) to fill in the middle of the graph/eq; MP3. take reading(s) to extend the range of the graph;	ignore references to parallax error / accuracy allow take readings with greater precision/eq	2