6 Nine athletes in a club have a new coach. The coach adopts a new training programme which he believes will reduce the race times of these athletes. Each athlete completes a 1500 m time trial before and after completing the new training programme. Their times, in seconds (s), are recorded.

Athlete	*A*	*B*	*C*	*D*	*E*	*F*	*G*	*H*	*I*
Time before training (s)	250	251	252	267	276	291	310	320	335
Time after training (s)	245	251	253	261	275	293	302	313	320

(a) Carry out a paired *t*-test at the 5% significance level to test the coach's belief. [7]

Further research suggests that the effects of the training programme tend to reduce the times of the slower athletes by more than those of the faster athletes.

(b) Suggest a reason why the paired *t*-test used in part **(a)** may not have been an appropriate test in this case. [1]

(c) Suggest a suitable alternative test that could have been used instead of a paired *t*-test. [1]