

Manet has developed a new training course to help athletes improve their time taken to run 800 m. Manet claims that his course will decrease an athlete’s time by more than 2 s on average. For a random sample of 10 athletes the times taken, in seconds, before and after the course are given in the following table.

Athlete	<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>	<i>E</i>	<i>F</i>	<i>G</i>	<i>H</i>	<i>I</i>	<i>J</i>
Before	150	146	131	135	126	142	130	129	137	134
After	145	138	129	135	122	135	132	128	127	137

Use a t -test, at the 5% significance level, to test whether Manet’s claim is justified, stating any assumption that you make. [8]