4. **In this question you must show all stages of your working.**

Solutions relying entirely on calculator technology are not acceptable.

(a) Express as an integral

$$\lim_{\delta x \to 0} \sum_{x=4}^{12} (1 + 2x)^{\frac{1}{2}} \delta x$$

(1)

(b) Using your answer to part (a) show that

$$\lim_{\delta x \to 0} \sum_{x=4}^{12} (1 + 2x)^{\frac{1}{2}} \delta x = \frac{98}{3}$$

(3)