**7.** The random variable $X$ has a continuous uniform distribution over the interval $[a - 1, a + 5]$ where $a$ is a constant.

The mean of a random sample of size 9, taken from this distribution, is denoted by $\bar{X}$

(a) Find, in terms of $\bar{X}$, an unbiased estimator for $a$

**(3)**

(b) Hence find the standard error of the unbiased estimator for $a$

**(5)**

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**Question 7 continued**

**(Total for Question 7 is 8 marks)**