| Question |  |  | Answer | Marks | AOs | Guidance |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 3 | (a) |  | $1+(-3)(-a x)+\frac{(-3)(-4)}{2}(-a x)^{2}+\ldots$ | M1 | 1.1a | Attempt to use the binomial expansion | Allow sign errors, bracket errors, a slip |
|  |  |  | Equate coefficients $3 a=6 a^{2}$ | M1 | 1.1a | Equating their coefficients | Allow recovery from missing brackets Their equation |
|  |  |  | $a=\frac{1}{2}$ | $\begin{aligned} & \mathbf{A 1} \\ & {[3]} \end{aligned}$ | 1.1b | oe www | should not involve $x$ |
| 3 | (b) | (i) | Valid for $\|x\|<2$ | $\begin{aligned} & \text { B1 } \\ & {[1]} \end{aligned}$ | 2.3 | Accept $\|x\|<\frac{1}{\|a\|}$ for their $a$ | Do not accept $x<2$, $\left\|\frac{1}{2} x\right\|<1$ or $\|x\| \leq 2$ or similar |
| 3 | (b) | (ii) | $\left[\left(1-\frac{1}{2} x\right)^{-3} \approx\right] 1+\frac{3}{2} x+\frac{3}{2} x^{2}$ | $\begin{aligned} & \text { B1 } \\ & {[1]} \end{aligned}$ | 1.1b | Cao |  |

