3 **(a)** Expand $(3-2x)^{-2}$ in ascending powers of x up to and including the term in x^2. **[4]**

(b) State the set of values of x for which this expansion is valid. **[1]**

(c) When $\dfrac{a+x}{(3-2x)^2}$ is expanded in ascending powers of x, the coefficient of x is zero.

Determine the value of the constant a. **[2]**