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**3.** (a) Find the first 4 terms, in ascending powers of $x$, of the binomial expansion of

$$\left(2 - \frac{kx}{4}\right)^8$$

where $k$ is a non-zero constant. Give each term in simplest form.

**(4)**

$$f(x) = (5 - 3x)\left(2 - \frac{kx}{4}\right)^8$$

In the expansion of $f(x)$, the constant term is 3 times the coefficient of $x$.

(b) Find the value of $k$.

**(3)**

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**Question 3 continued**

**Q3**

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**4.** Using the laws of logarithms, solve

$$\log_3(32 - 12x) = 2\log_3(1 - x) + 3$$

**(5)**

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