

3. [Maximum mark: 14]

Consider the function $f(x) = 0.3x^3 + \frac{10}{x} + 2^{-x}$.

- (a) Calculate $f(1)$. [2]
- (b) Sketch the graph of $y = f(x)$ for $-7 \leq x \leq 4$ and $-30 \leq y \leq 30$. [4]
- (c) Write down the equation of the vertical asymptote. [2]
- (d) Write down the coordinates of the x -intercept. [2]
- (e) Write down the possible values of x for which $x < 0$ and $f'(x) > 0$. [2]

Consider a second function, $g(x) = 2x - 3$.

- (f) Find the solution of $f(x) = g(x)$. [2]
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