

## Exponentials and Logarithms - Practice Exam 2

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**Question 1.** Solve the following equation for  $x \in \mathbb{R}$ ,

$$\log_e(x) + \log_e(x - 3) = 4.$$

**Question 2.** State the transformations (in order) that are required to transform the function

$$f(x) = \frac{1}{3}e^{2x+7} - 6$$

to the function

$$\tilde{f}(x) = e^x.$$

**Question 3.** Sketch the functions  $f$  and  $\tilde{f}$  that are given in Question 2.

**Question 4.** Determine the value of  $k \in \mathbb{R}$  such that the equation

$$\log_4(x) - k \log_x(4) = 3$$

has two solutions.