

Name \_\_\_\_\_

- You have 18 minutes
- No calculators
- Show sufficient work

1. (3 points) Determine all values of  $x$  which satisfy the equation below.

$$25 - 6x = e^{2\ln(3-x)}$$

2. (2 points) If  $h(x) = \frac{2}{3 + 5e^{4x}}$  then determine a formula for  $h^{-1}(x)$ .

3. (3 points) Carefully sketch a graph of the following function. You should clearly label the value of any  $x$ -intercepts,  $y$ -intercepts, or asymptotes.

$$y = 3 - 15e^{-x}$$

4. (2 points) Determine a formula for an exponential function given that its graph goes through the points  $(1, 10)$ ,  $(5, 30)$  and  $(9, 90)$ .