

Name _____

- You have 20 minutes
- No calculators
- Show sufficient work

1. (1 point) Simplify the following quantity.

$$15e^{2\ln(\sqrt{3}/3)}$$

2. (3 points) Carefully sketch a graph of the following function. You should clearly label the value of any x -intercepts, y -intercepts, or asymptotes.

$$y = 4 - 12e^{-x}$$

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

$$\ln(x + 5) + \ln(x + 7) = \ln(3)$$

4. (3 points) The function $w(x) = \frac{4}{5 + 3e^{2x}}$ is one-to-one on its domain. Determine a formula for its inverse $w^{-1}(x)$.