Show work for all problems; use the back of the sheet if necessary.

1. **(4 points)** Find a function of the form $f(x) = Ca^x$ for a graph which passes through the points $(0, 4)$ and $(3, 108)$.

2. **(4 points)** Evaluate the following logarithms.

   (a) $\log_{49} 7$.

   (b) $\log_2 32$.

   (c) $\log_6 0$.

   (d) $\log_5 \frac{1}{25}$.

3. **(4 points)** Find the domain of the function $f(x) = \log_5(8 - 2x)$.

4. **(4 points)** Calculate the expression $2\log_3 10 - \log_3 18 - \log_3 50$.

5. **(4 points)** Expand the logarithm $\ln \sqrt{\frac{(x^3y)^3}{\sqrt{z}}}$ into an expression in terms of $\ln x$, $\ln y$, and $\ln z$