1. For the function \( f(x) = \sqrt[4]{10 - 5x} \)
   a. State the domain of the function
   b. Find \( f^{-1}(x) \)
   c. Find the domain of \( f^{-1}(x) \)
   d. ‘Prove’ your inverse function is correct by finding the composition of \( f \) and \( f^{-1}(x) \)
2. You are turning 25 and you want to invest for your retirement at the age of 65. Use the formula for compound interest -- you are investing $15,000 at a rate of 6.25% compounded annually. How much money will you have at retirement? How much money will you have if you don't start until your 35th birthday?

3. Evaluate \( \ln \left( \sqrt[4]{e^2} \right) \) without using a calculator

4. Find \( \log_2 21 \) using the change of base formula

5. Given that \( \log_b 2 = 0.693 \), \( \log_b 3 = 1.099 \) and \( \log_b 5 = 1.609 \), find \( \log_b 6 \)
6. Solve the equation \( \log(2x + 1) + \log(x + 1) = 1 \)

7. Solve the equation \( e^x - 6e^{-x} = 1 \)

8. Solve the equation \( 5^{x-6} = 211 \)
9. Solve the equation $\log_3 x + \log_3 (x + 1) = \log_3 2 + \log_3 (x + 3)$

10. A virus has a doubling time of 3 hours. Find an equation to express the number of cells present, $V$, for any time $t$ (in hours) if there are initially 40 virus cells.