4.1 Exponential Functions

1. Sketch the graph. Label the intercepts and asymptotes.

   (a) $y = 2^x$
   (b) $y = 2^{-x}$
   (c) $y = 2^x + 3$
   (d) $y = 2^{-x} + 1$
   (e) $y = e^{-x} - 2$
   (f) $y = 3e^x$
   (g) $y = 2e^{-x}$

2. Solve each equation.

   (a) $2^x = 64$
   (b) $10^x = 0.1$
   (c) $3^x = 1/27$
   (d) $3^{-x} = 9$
   (e) $9^x = 3$
   (f) $10^{x-1} = 0.01$

3. A deposit of \$10,000 earns 6% annual interest. Find the amount in the account at the end of 5 years if the interest is compounded

   (a) annually
   (b) quarterly
   (c) monthly
   (d) daily

4. A deposit of \$2,000 is invested in Roth IRA account. Interest is compounded continuously. What will the value of the investment after 40 years if the annual interest rate is

   (a) 3%
   (b) 5%
   (c) 7%
   (d) 9%