

1. Find an exponential function of the form $f(x) = ba^x$ that has y -intercept 16 and passes through the point $P(2, 1)$.

2. Solve the equation:

$$16^{7x} \left(\frac{1}{4}\right)^{10x+7} = 64(4^x)^{-10}$$

3. Find the zeros of $f(x) = x^3(5e^{5x}) + 3x^2e^{5x}$.

4. Suppose \$1000 is invested at a rate of 13% per year compounded monthly.

a) Find the principal after 1 month.

b) Find the principal after 6 months.

c) Find the principal after 1 year.

d) Find the principal after 20 years.

5. Assume that interest is compounded quarterly at a nominal rate of 6%. An investor wants an investment to be worth \$18,000 after 9.25 years. Determine the amount the investor must now invest.

6. How much money, invested at an interest rate of 6.2% per year compounded continuously, will amount to \$100,000 after 10 years?