Read each problem **very carefully** before starting to solve it. Each problem is worth 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. The cost of a 4-year public college education has been estimated at $48,000. How large of a fund paying 6% compounded monthly must be established when a child is 8 years old to ensure sufficient funds for college at age 18?

2. After t weeks of practice a typing student can type $W(t) = 100(1 - e^{-0.4t})$ words per minute. How soon will she be able to type 80 words per minute?

3. Solve the exponential equation
$$2^{x^2+3} = 4^{2x}.$$

4. Solve the logarithmic equation
$$\log(x+2) - \log x = 3.$$