Name: $\qquad$
Directions: Show all work. No credit for answers without work.

1. [2 points] After the price of a luxury car decreases by $4 \%$, it costs $\$ 28,499$. Find the original price of the car.
2. [3 parts, 1 point each] A new chocolate company builds a manufacturing plant that costs $\$ 1,500,000$. Each chocolate bar that they produce costs $\$ 1.75$ and sells for $\$ 7.50$.
(a) Find formulas for the cost and revenue functions.
(b) Find the company's fixed costs and the company's marginal cost.
(c) How many chocolate bars must the company sell to make a profit?
3. [0 points] Would you like to join a Math 122 study group? Please respond yes or no. By responding yes, you authorize me to include your name and USC email address in a message sent to your Math 122 study group. Each group will have at most 4 students chosen at random from the class.
4. [2 parts, $\mathbf{1}$ point each] Solve the following equations for $x$ exactly. Decimal approximations are worth partial credit.
(a) $2 \cdot 7^{x}=5$
(b) $5 e^{3 x+1}=2^{x}$
5. [3 parts, 1 point each] You are negotiating your compensation for a 3 year consulting project. Your client is willing to accept two payment plans. Payment Plan $A$ consists of a one-time payment of $\$ 200,000$ three years from now, when the project is complete. Payment Plan $B$ calls for an immediate payment of $\$ 50,000$, a payment of $\$ 60,000$ halfway through the project, and a final payment of $\$ 70,000$ when the project is complete. Assume that invested funds earn interest at a rate of $4 \%$, compounded annually.
(a) Find the future value of both plans in 3 years.
(b) Find the present value of both plans.
(c) Which plan represents the better deal?
