

Name _____

Seat # _____

1. (4 points) This morning, Lois has invested \$600 in a bank account which earns 4.5% interest compounded continuously.

A. How much money will she have in her account 9 years from now?

- (a) \$899.58 (b) \$939.22 (c) \$948.51 (d) \$999.17 (e) \$1021.33

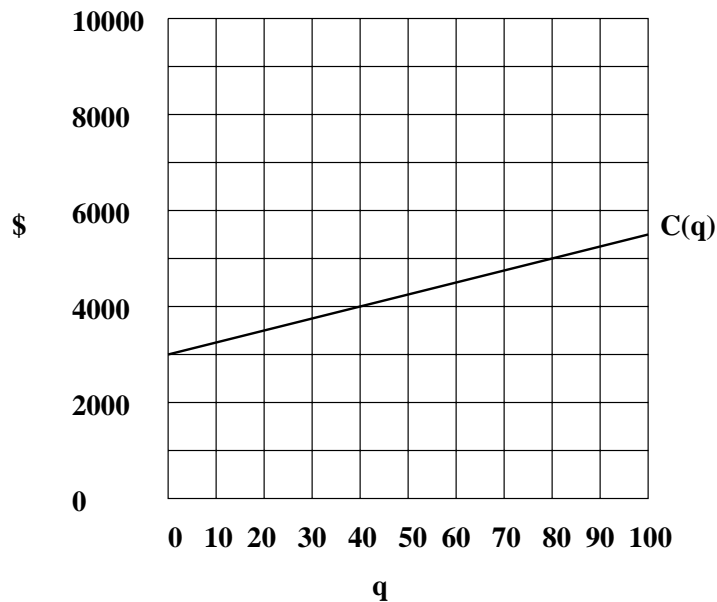
B. How long will it take for the balance in her account to reach \$1500?

- (a) 20.2 years (b) 20.4 years (c) 20.6 years (d) 20.8 years (e) 21.0 years

2. (2 points) A culture of bacteria grows exponentially and triples in size every 6 hours. How long does it take to double its original size?

- (a) 3.8 hours (b) 4.0 hours (c) 4.2 hours (d) 4.4 hours (e) 4.6 hours

3. (4 points) The cost in dollars for a company to produce q chemistry sets is given by the linear function $C(q)$ whose graph is shown below.



- (a) What are the fixed costs to this company?
- (b) Find a formula for $C(q)$.
- (c) When the company sells these chemistry sets, they charge \$100 for each set. Find a formula for the revenue function $R(q)$ and carefully sketch a graph of this function using the same coordinate axes used for $C(q)$.
- (d) How many chemistry sets must this company produce and sell in order to break even?