Financial Algebra Chap 2 Day 9 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_

Continuous Compound Practice

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| **4.** Find the interest earned on a $50,000 deposited for six years at 4 1/8% interest, compounded continuously. |
| **5.** Whitney deposits $9,000 for two years. She compares two different banks. State Bank will pay her 4.1% interest, compounded monthly. Kings Savings will pay her 4.01% interest, compounded continuously. |
| **a.** How much interest does State Bank pay? | **b.** How much interest does Kings Savings pay? |
| **c.** Which bank pays higher interest? How much higher? | **d.** What other factors might affect Whitney’s choice besides interest? |
| **6.** Interest rates fluctuate with the economy. In the 1980s, the highest CD interest rate was over 16%. By 2009, the highest CD interest rates were approximately 5%. |
| **a.** If $1,000 is invested at 16% interest, compounded continuously, for five years, what is the ending balance? | **b.** If $1,000 is invested at 5% interest, compounded continuously, for five years, what is the ending balance? |
| **c.** What is the difference between the two ending balances? |
| **7.** Find the interest earned on a $30,000 deposit for six months at 4 ½% interest, compounded continuously.

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| **8.** Caroline is opening a CD to save for college. She is considering a 3-year CD or a 3 ½ -year CD since she starts college around that time. She needs to be able to have the money to make tuition payments on time, and she does not want to have to withdraw money early from the CD and face a penalty. She has $19,400 to deposit. |

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| **a.** How much interest would she earn at 4.2% compounded monthly for three years? Round to the nearest cent. | **b.** How much interest would she earn at 4.2% compounded monthly for 3 ½ years? Round to the nearest cent. |
| **c.** Caroline decides on a college after opening the 3½ -year CD, and the college needs the first tuition payment a month before the CD matures. Caroline must withdraw money from the CD early, after 3 years and 5 months. She faces two penalties. First, the interest rate for the last five months of the CD was lowered to 2%. Additionally, there was a $250 penalty. Find the interest on the last five months of the CD. Round to the nearest cent. |
| **d.** Find the total interest on the 3½ year CD after 3 years and 5 months. | **e.** The interest is reduced by subtracting the $250 penalty. What does the account earn for the 3 years and 5 months? |
| **f.** Find the balance on the CD after she withdraws $12,000 after 3 years and five months. | **g.** The final month of the CD receives 2% interest. What is the final month’s interest? Round to the nearest cent. |
| **h.** What is the total interest for the 3½ year CD? | **i.** Would Caroline have been better off with the 3-year CD? Explain? |
| **9.** Samuel wants to deposit $4,000 and keep that money in the bank without deposits or withdrawals for three years. He compares two different options. Option 1 will pay 3.8% interest, compounded quarterly. Option 2 will pay 3.5% interest, compounded continuously. |
| **a.** How much interest does Option 1 pay? | **b.** How much interest does Option 2 pay? |
| **10.** Write an algebraic expression for the interest earned on a $15,000 deposit for *t* months at 2.75% interest, compounded continuously. |