Math 3   **Name** _____

9.6 Application of Exponential Equations   **Hour** _____

$$A = P\left(1 + \frac{r}{n}\right)^{nt} \quad or \quad A = Pe^{rt}$$

Find the missing information asked for in each question. Write the formula you used to solve for the answer.

1. Madison invests $4,321 earning 5% interest compounded monthly. Calculate the balance in her account after 4.5 years.

2. Brad invests $1,231 earning 4% interest compounded weekly. Calculate the balance in his account after 3 years.

3. Mr. Rogers invests $5,378 earning 2.5% interest compounded annually. Calculate the balance in his account after 10 years.

4. Sally borrows an amount of $8,542 from a bank. The bank charges an interest rate of 3.5%, which is compounded continuously. Calculate the balance after 3 years if she paid no monthly payment.

5. Freddie borrows an amount of $12,600 from a bank. The bank charges an interest rate of 4%, which is compounded continuously. Calculate the balance after 3 years if he paid no monthly payment.

6. Fannie borrows an amount of $15,000 from a bank and the bank charges an interest rate of 2.5%, which is compounded continuously. Calculate the balance after 3 years if she paid no monthly payment.

7. If you put $3,200 in a savings account that earns 2.5% interest per year compounded quarterly, how much would you expect to have in the account in 3 years?

8. How much money did you invest if you have $10,000 in a savings account that earned 3.5% interest per year compounded annually for 5 years?

9. How much money should you put in a savings account now that earns 5% a year compounded daily if you want to have $32,000 in 18 years?

10. How much money should you put in a savings account now that earns 3.0% a year compounded weekly if you want $80,000 in 15 years?

11. What is the interest rate of an account that is compounded continuously for 15 years that currently has $3750 if you initially invested $3,200?

12. If you put $7,000 in a money market account that pays 4.3%, a year compounded continuously. How many years will it take the account to reach $10,000?

13. How much money should you deposit into a money market account that pays 5% a year compounded continuously to have $38,000 in the account in 20 years?

14. How long will it take an account to double its initial investment if the account is earning 6% a year compounded continuously?