Practice 4.8: Analyzing Exponential Functions   A

Find the percent rate of change of $f(t)$ for each unit of t. State whether the function shows exponential growth or decay.

1. $f(t) = 110(0.95)^t$

2. $f(t) = 1.08(1.07)^t$

3. $f(t) = 30(0.90)^{4t}$

4. $f(t) = 63(0.87)^{11t}$

5. $f(t) = 500(1.15)^{2t}$

Use the information to complete problems 6–8.

The deer population, p, in a forest preserve t years after 2005 can be estimated using the function $p(t) = 440(0.92)^t$.

6. What was the size of the deer population in 2005?

7. What is the yearly rate of change of the population?

8. The wolf population may be related to the deer population. The wolf population, *w*, can be estimated *t* years after 2005 using the function $w(t) = 84(0.98)^{2t}$. Which population is changing faster? Explain your answer.

Use the information to complete problems 9 and 10.

Neal opens a savings account that earns interest monthly. He can estimate the total dollars in his account, *d(t)*, *t* years after opening the account by using $d(t) = 4000(1.0008)^{12t}$.

9. How much money did Neal initially put into the account?

10. What is the yearly rate of change of the account? Is it growing or decaying?