**Warm-Up**

Exponential Functions

***Directions***: Determine **a)** whether each function is exponential growth or decay, **b)** find the functions’ percent increase or decrease.

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1. You deposit $3000 into your savings account. Bank of America has an interest rate of 0.10% and your account is *compounded monthly*. Which of the following equations can be used to model the situation?

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| A triangle and its dimensions are shown below.  Which of the following is the perimeter of the triangle?   |  | | --- | |  | |  | |  | | 1. The perimeter cannot be determined from the information given | |
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**Classwork 8-2 Continued**

Compound Interest

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|  | Interest is compounded |  | **time a year.** |  |  |  |
|  | Interest is compounded |  | **times a year.** |  |  |  |
|  | Interest is compounded |  | **times a year.** |  |  |  |
|  | Interest is compounded |  | time a month. | This is |  | **times a year.** |
|  | Interest is compounded |  | times a month. | This is |  | **times a year.** |
|  | Interest is compounded |  | time a week. | This is |  | **times a year.** |
|  | Interest is compounded |  | time a day. | This is |  | **times a year.** |

1. Suppose you deposit $1500 in a savings account that pays interest at an *annual**rate* of 6%. No money is added or withdrawn from the account.
2. How much will be in the account after 5 years?
3. How much will be in the account after 20 years?
4. Suppose you invest $7500 at an annual interest of 7% *compounded* *biweekly*. How much will you have in the account in 10 years?
5. Sarah received a paycheck for $1200. She deposited  of the money into a bank account. The account has an interest rate of 0.6% *compounded quarterly*. This is the first and last deposit that Sarah makes into this account. How much money will be in the account in 15 years?
6. You buy a savings bond for $25 that pays a *yearly* interest rate of 4.2%. What will the savings bond be worth after ten years?
7. You charge $50 worth of clothes for your new job on your credit card. The interest rate on your credit card is 12.5% *monthly*. If you make no payments and no additional purchases how much money will you owe at the end of 6 months?

***Directions***: Determine **a)** whether each function is exponential growth or decay, **b)** identify the growth (or decay) factor, and **c)** find the functions’ percent increase or decrease.

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***Directions*:a)** Write a function (either an *exponential model* or *compound interest*) for each situation. **b)** Find the value asked for.

1. A population of 1,236,000 grows 1.3% per year for 10 years.
2. A stock of $6,500 with a 1.5% interest *compounded quarterly* for 2 years.
3. The price of a new home is $350,000. The value of the home appreciates 2% each year. How much will the home be worth in 10 years?
4. An investment of $75,000 increases at a rate of 12.5% per year. What is the value of the investment after 30 years?