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Algebra II

## ***Interpreting Exponential Functions***

1. The function  $A = 3,600(1.025)^t$  represents the value of a bank account after  $t$  years. Which of the following statements is *false*?

- 1) The initial investment of the bank account was \$3,600.
- 2) The annual interest rate of the bank account is 2.5%.
- 3) The value of the account after 5 years is \$4073.07.
- 4) It will take 12 years for the value of the account to double.

2. The function  $v(t) = 10,000(1.112)^t$  represents the value of a stock investment after  $t$  years. Which of the following statements is *false*?

- 1) The stock is increasing by 11.2% each year.
- 2) The value of the stock after 3 years is \$13,750.37
- 3) The value of the stock increased by \$1245.44 between year 1 and year 2.
- 4) The initial stock investment was \$11,120.

3. The function  $v(t) = 40,000(0.887)^t$  represents the value of a 2020 Subaru Ascent after  $t$  years. Which of the following statements is *false*?

- 1) The initial value of the car was \$40,000.
- 2) The value of the car is decreasing by 11.3% each year.
- 3) The car is worth \$15,324.18 after 5 years.
- 4) The decreased \$3,556.20 from years 2 to 3.

4. A certain pain reliever is taken in 220 mg dosages and has a half-life of 12 hours. The

function  $A = 220\left(\frac{1}{2}\right)^{\frac{t}{12}}$  can be used to model this situation, where  $A$  is the amount of pain

reliever in milligrams remaining in the body after  $t$  hours. According to this function, which statement is true?

- 1) Every hour, the amount of pain reliever remaining is cut in half.
- 2) In 12 hours, there is no pain reliever remaining in the body.
- 3) In 24 hours, there is no pain reliever remaining in the body.
- 4) In 12 hours, 110 mg of pain reliever is remaining.

5. An equation to represent the value of a car after  $t$  months of ownership is  $v = 32,000(0.81)^{\frac{t}{12}}$ . Which statement is *not* correct?

- 1) The car lost approximately 19% of its value each month.
- 2) The car maintained approximately 98% of its value each month.
- 3) The value of the car when it was purchased was \$32,000.
- 4) The value of the car 1 year after it was purchased was \$25,920.

6. The value of an investment account,  $v(t)$ , can be modeled by the equation  $v(t) = 500(1.15)^{3.2t}$  after  $t$  years. Which of the following statements must be true?

- 1) The account is increasing approximately 15% each year.
- 2) The account is increasing approximately 56% each year
- 3) There will be \$1216.80 in the account after two years
- 4) It will take 3.68 years for the account to double