ALGEBRA 1 EOC REVIEW

EXPONENTIAL EQUATIONS

EOC Multiple Choice Practice!

Exponentials EOC Multiple Choice Practice

Directions: Choose the best answer to each question. Write the letter for the answer you have chosen in the blank at the left of each question.

_____ **1.** Carl and Jessie paid $215,000 for their house overlooking the beach. If the house appreciates at a rate of 3% each year, what is the closest estimate of the value of the house after 5 years?

a. $249,244

b. $247,250

c. $241,984

d. 240,493

_____ **2.** In the last ten years, a company's gross income has risen at an annual rate of 40%. If the gross incomes at the beginning of the period was 0.2 million dollars, which formula can be used to estimate the income I (in millions of dollars) during the period, where t is the number of years since the beginning of the period?

a. $I = 0.2(0.4)^t$

b. $I = 0.2(40)^t$

c. $I = (0.2 \times 1.4)^t$

d. $I = 0.2(1.4)^t$

_____ **3.** The function $P(t) = 100(1.05)^x$ models the population P (in thousands) of a city from 1992 to 2004, where t = 0 represents the year 1992. If the growth rate remains the same, about how many people does the model predict will lived in the city in 2010?

a. 265,000

b. 241,000

c. 200,000

d. 2190,000

_____ **4.** The change of a quantity after x years can be modeled by the functions $y = 200(.96)^x$. Which describes how the quantity changes each year?

a. It is growing at an annual rate of 0.96%.

b. It is growing at an annual rate of 96%.

c. It is decreasing by 8 each year.

d. It is decreasing at an annual rate of 4%.

_____ **5.** The number of bacteria in a culture increases by 50% each hour. If 1,000 bacteria were originally present in the culture, which formula gives the number of bacteria present in the culture after t hours?

  a. $N = (0.5)^{1,000t}$

  b. $N = 1,000(0.5)^t$

  c. $N = 1.5^t$

  d. $N = 1,000(1.5)^t$

_____ **6.** A small town had a population of 4,000 people in 2000. For the next 4 years, the town had a boom in population, growing at an average annual rate of 120%. What was the approximate population in 2004?

  a. 3,520

  b. 8,300

  c. 9,370

  d. 10,520

_____ **7.** The decline of the dollar value y in t years of a tractor-trailer truck is modeled by the function $V(t) = 160,000(0.88)^t$. What is the truck's initial value?

  a. $160,000

  b. $148,000

  c. $140,800

  d. $88,000

_____ **8.** What is the y-intercept of the graph $y = 2(6)^x$?

  a. 2

  b. 6

  c. 8

  d. 12

_____ **9.** What is the y-intercept of the graph of $y = 2(6)^x + 5$?

  a. 2

  b. 6

  c. 7

  d. 17

____ **10.** A new automobile is purchased for $20,000. If V = 20,000(0.8)^x gives the car's value after x years, about how long will it take for the car to be worth half its purchase price?

    a. 2 years   b. 3 years

    c. 4 years   d. 5 years

____ **11.** The value of Mr. Dudley's car x years after its purchase if give by the function V(t) = 15,000(0.87)^x. Approximately, what was the value of Mr. Dudley's car 5 years after its purchase?

    a. $7,500   b. $8,600

    c. $9,900   d. $13, 100

____ **12.** Three years ago, Alex invested $5,000 in an account that earns 5% interest compounded annually. If Alex made no additional deposits or withdrawals, how much is in the account now?

    a. $5,250.26   b. $5,470.19

    c. $5,750.00   d. $5,788.13

____ **13.** The function y = 58.7(1.03)^t gives a country's population, y (in millions), where t is the number of years since January 1994. According to this function, what was the approximate population of the country in January 2002?

    a. 70 million   b. 72 million

    c. 74 million   d. 76 million

____ **14.** When Robert was born, his grandfather invested $1,000 for Robert's college education. At an interest rate of 4.5%, approximately how much would Robert have at age 18?

    a. $1,810   b. $2,200

    c. $3,680   d. $18,810

Exponentials EOC Multiple Choice Practice ANSWER KEY

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D____ 2. In the last ten years, a company's gross income has risen at an annual rate of 40%. If the gross incomes at the beginning of the period was .2 million dollars, which formula can be used to estimate the income I (in millions of dollars) during the period, where t is the number of years since the beginning of the period?

    a. $I = 0.2(0.4)^t$ b. $I = 0.2(40)^t$

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B____ 3. The function $P(t) = 100(1.05)^x$ models the population P (in thousands) of a city from 1992 to 2004, where t = 0 represents the year 1992. If the growth rate remains the same, about how many people does the model predict will lived in the city in 2010?

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Student Answer Sheet   **Names:_____**

1.   8.

2.   9.

3.   10.

4.   11.

5.   12.

6.   13.

7.   14.

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2.   9.

3.   10.

4.   11.

5.   12.

6.   13.

7.   14.

ANSWER KEY

1.A

2.D

3.B

4.D

5.D

6.C

7.A

8.A

9.C

10.B

11.A

12.D

13.C

14.B