F.BF.A.1: Modeling Exponential Functions 1

1   A high school sponsored a badminton tournament.
    After each round, one-half of the players were
    eliminated. If there were 64 players at the start of
    the tournament, which equation models the number
    of players left after 3 rounds?
    1) $y = 64(1 - .5)^3$
    2) $y = 64(1 + .5)^3$
    3) $y = 64(1 - .3)^{0.5}$
    4) $y = 64(1 + .3)^{0.5}$

2   A student invests $500 for 3 years in a savings
    account that earns 4% interest per year. No further
    deposits or withdrawals are made during this time.
    Which statement does *not* yield the correct balance
    in the account at the end of 3 years?
    1) $500(1.04)^3$
    2) $500(1 - .04)^3$
    3) $500(1 + .04)(1 + .04)(1 + .04)$
    4) $500 + 500(.04) + 520(.04) + 540.8(.04)$

3   Joe deposits $4000 into a certificate of deposit
    (CD) at his local bank. The CD earns 3% interest,
    compounded annually. The value of the CD in x
    years can be found using the function
    1) $f(x) = 4000 + 0.3x$
    2) $f(x) = 4000 + 0.03x$
    3) $f(x) = 4000(1.3)^x$
    4) $f(x) = 4000(1.03)^x$

4   Emily was given $600 for her high school
    graduation. She invested it in an account that earns
    2.4% interest per year. If she does *not* make any
    deposits or withdrawals, which expression can be
    used to determine the amount of money that will be
    in the account after 4 years?
    1) $600(1 + 0.24)^4$
    2) $600(1 - 0.24)^4$
    3) $600(1 + 0.024)^4$
    4) $600(1 - 0.024)^4$

5   Krystal was given $3000 when she turned 2 years
    old. Her parents invested it at a 2% interest rate
    compounded annually. No deposits or withdrawals
    were made. Which expression can be used to
    determine how much money Krystal had in the
    account when she turned 18?
    1) $3000(1 + 0.02)^{16}$
    2) $3000(1 - 0.02)^{16}$
    3) $3000(1 + 0.02)^{18}$
    4) $3000(1 - 0.02)^{18}$

6   Anne invested $1000 in an account with a 1.3%
    annual interest rate. She made no deposits or
    withdrawals on the account for 2 years. If interest
    was compounded annually, which equation
    represents the balance in the account after the 2
    years?
    1) $A = 1000(1 - 0.013)^2$
    2) $A = 1000(1 + 0.013)^2$
    3) $A = 1000(1 - 1.3)^2$
    4) $A = 1000(1 + 1.3)^2$

Name: _____

7   The country of Benin in West Africa has a population of 9.05 million people. The population is growing at a rate of 3.1% each year. Which function can be used to find the population 7 years from now?

1) $f(t) = (9.05 \times 10^6)(1 - 0.31)^7$

2) $f(t) = (9.05 \times 10^6)(1 + 0.31)^7$

3) $f(t) = (9.05 \times 10^6)(1 + 0.031)^7$

4) $f(t) = (9.05 \times 10^6)(1 - 0.031)^7$

8   Sunny purchases a new car for $29,873. The car depreciates 20% annually. Which expression can be used to determine the value of the car after t years?

1) $29,873(.20)^t$

2) $29,873(20)^t$

3) $29,873(1 - .20)^t$

4) $29,873(1 + .20)^t$

9   Rhonda deposited $3000 in an account in the Merrick National Bank, earning 4.2% interest, compounded annually. She made no deposits or withdrawals. Write an equation that can be used to find B, her account balance after t years.

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Answer Section

  1 ANS: 1   REF: 012002ai
  2 ANS: 2   REF: 061617ai
  3 ANS: 4   REF: 012420ai
  4 ANS: 3   REF: 082209ai
  5 ANS: 1   REF: 011504ai
  6 ANS: 2   REF: 061712ai
  7 ANS: 3   REF: 081507ai
  8 ANS: 3   REF: 012311ai
  9 ANS:

$B = 3000(1.042)^t$

REF: 081426ai