

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

- 1 The current population of a town is 10,000. If the population, P , increases by 20% each year, which equation could be used to find the population after t years?
 - 1) $P = 10,000(0.2)^t$
 - 2) $P = 10,000(0.8)^t$
 - 3) $P = 10,000(1.2)^t$
 - 4) $P = 10,000(1.8)^t$

- 2 Robert invests \$800 in an account at 1.8% interest compounded annually. He will make no deposits or withdrawals on this account for 3 years. Which formula could be used to find the balance, A , in the account after the 3 years?
 - 1) $A = 800(1 - .18)^3$
 - 2) $A = 800(1 + .18)^3$
 - 3) $A = 800(1 - .018)^3$
 - 4) $A = 800(1 + .018)^3$

- 3 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) $A = 1000(1 + 1.3)^2$

- 4 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) $3000(1 - 0.02)^{18}$

- 5 Mr. Smith invested \$2,500 in a savings account that earns 3% interest compounded annually. He made no additional deposits or withdrawals. Which expression can be used to determine the number of dollars in this account at the end of 4 years?
 - 1) $2500(1 + 0.03)^4$
 - 2) $2500(1 + 0.3)^4$
 - 3) $2500(1 + 0.04)^3$
 - 4) $2500(1 + 0.4)^3$

- 6 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) $500 + 500(.04) + 520(.04) + 540.8(.04)$

- 7 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.
- 8 Kathy plans to purchase a car that depreciates (loses value) at a rate of 14% per year. The initial cost of the car is \$21,000. Which equation represents the value, v , of the car after 3 years?
- 1) $v = 21,000(0.14)^3$
 - 2) $v = 21,000(0.86)^3$
 - 3) $v = 21,000(1.14)^3$
 - 4) $v = 21,000(0.86)(3)$
- 9 A car depreciates (loses value) at a rate of 4.5% annually. Greg purchased a car for \$12,500. Which equation can be used to determine the value of the car, V , after 5 years?
- 1) $V = 12,500(0.55)^5$
 - 2) $V = 12,500(0.955)^5$
 - 3) $V = 12,500(1.045)^5$
 - 4) $V = 12,500(1.45)^5$
- 10 The New York Volleyball Association invited 64 teams to compete in a tournament. After each round, half of the teams were eliminated. Which equation represents the number of teams, t , that remained in the tournament after r rounds?
- 1) $t = 64(r)^{0.5}$
 - 2) $t = 64(-0.5)^r$
 - 3) $t = 64(1.5)^r$
 - 4) $t = 64(0.5)^r$

F.BF.A.1 Modeling Exponential Functions 1a
Answer Section

1 ANS: 3 REF: 011310ia

2 ANS: 4 REF: 061621ia

3 ANS: 2 REF: 061712ai

4 ANS: 1 REF: 011504ai

5 ANS: 1 REF: 011202ia

6 ANS: 2 REF: 061617ai

7 ANS:

$$B = 3000(1.042)^t$$

REF: 081426ai

8 ANS: 2 REF: 060830ia

9 ANS: 2 REF: 061229ia

10 ANS: 4 REF: 010908ia