

F.BF.A.1: Modeling Exponential Functions 2

- 1 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) $v = 21,000(0.86)(3)$

- 2 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) $t = 64(0.5)^r$

- 3 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) $2500(1 + 0.4)^3$

- 4 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) $V = 12,500(1.45)^5$

- 5 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) $P = 10,000(1.8)^t$

- 6 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) $A = 800(1 + .018)^3$

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Answer Section

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|---|--------|---------------|
| 1 | ANS: 2 | REF: 060830ia |
| 2 | ANS: 4 | REF: 010908ia |
| 3 | ANS: 1 | REF: 011202ia |
| 4 | ANS: 2 | REF: 061229ia |
| 5 | ANS: 3 | REF: 011310ia |
| 6 | ANS: 4 | REF: 061621ia |