

NAME: \_\_\_\_\_

1. fall9916b, P.I. A.A.9  
The population of Henderson City was 3,381,000 in 1994, and is growing at an annual rate of 1.8%. If this growth rate continues, what will the approximate population of Henderson City be in the year 2000?  
[A] 3,763,000 [B] 3,831,000  
[C] 3,798,000 [D] 3,696,000
2. 010525b, P.I. A.A.9  
On January 1, 1999, the price of gasoline was \$1.39 per gallon. If the price of gasoline increased by 0.5% per month, what was the cost of one gallon of gasoline, to the *nearest cent*, on January 1 one year later?
3. 060803b, P.I. A.A.9  
Kathy deposits \$25 into an investment account with an annual rate of 5%, compounded annually. The amount in her account can be determined by the formula  $A = P(1 + R)^t$ , where  $P$  is the amount deposited,  $R$  is the annual interest rate, and  $t$  is the number of years the money is invested. If she makes no other deposits or withdrawals, how much money will be in her account at the end of 15 years?  
[A] \$25.75 [B] \$51.97  
[C] \$393.97 [D] \$43.75
4. 080224b, P.I. A.A.9  
The Franklins inherited \$3,500, which they want to invest for their child's future college expenses. If they invest it at 8.25% with interest compounded monthly, determine the value of the account, in dollars, after 5 years.  
Use the formula  $A = P(1 + \frac{r}{n})^n$ , where  $A$  = value of the investment after  $t$  years,  $P$  = principal invested,  $r$  = annual interest rate, and  $n$  = number of times compounded per year.
5. 010813b, P.I. A.A.9  
A radioactive substance has an initial mass of 100 grams and its mass halves every 4 years. Which expression shows the number of grams remaining after  $t$  years?  
[A]  $100(4)^{\frac{t}{4}}$  [B]  $100(\frac{1}{2})^{\frac{t}{4}}$   
[C]  $100(4)^{-2t}$  [D]  $100(\frac{1}{2})^{4t}$
6. 060721b, P.I. A2.A.6  
A population of wolves in a county is represented by the equation  $P(t) = 80(0.98)^t$ , where  $t$  is the number of years since 1998. Predict the number of wolves in the population in the year 2008.
7. 060607b, P.I. A2.A.6  
The height,  $f(x)$ , of a bouncing ball after  $x$  bounces is represented by  $f(x) = 80(0.5)^x$ . How many times higher is the first bounce than the fourth bounce?  
[A] 2 [B] 4 [C] 16 [D] 8
8. 080221b, P.I. A.A.9  
A used car was purchased in July 1999 for \$11,900. If the car depreciates 13% of its value each year, what is the value of the car, to the *nearest hundred dollars*, in July 2002?

[1] A \_\_\_\_\_

[2] \$1.48, and appropriate work is shown, such as providing a correctly labeled table or solving the equation  $(1.39)(1.005)^{12} = C$ .

[1] Appropriate work is shown, but one computational or rounding error is made.  
or [1] Appropriate work is shown, but one conceptual error is made, such as using 1.05 or 1.5 or using an incorrect exponent.  
or [1] A correct equation is written, but no further correct work is shown.  
or [1] An incorrect equation of equal difficulty is solved appropriately.  
or [1] \$1.48, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[2] incorrect procedure.

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[3] B \_\_\_\_\_

[2] 5,279.61, and appropriate work is shown, such as  $3,500(1 + \frac{0.0825}{12})^{(12 \times 5)}$ .

[1] Appropriate work is shown, but one computational or substitution error is made.  
or [1] 5,279.61, but no work is shown.  
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[4] incorrect procedure.

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[5] B \_\_\_\_\_

[2] 65, and appropriate work is shown, such as  $P(10) = 80(0.98)^{10}$ .

[1] Appropriate work is shown, but one computational or rounding error is made.  
or [1] Appropriate work is shown, but one conceptual error is made.  
or [1] 65, but no work is shown.  
[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[6] incorrect procedure.

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[7] D \_\_\_\_\_

[2] 7,800, and appropriate work is shown.

[1] Appropriate work is shown, but one computational or rounding error is made.  
or [1] 7,800, but no work is shown.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[8] incorrect procedure.

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