Name:
Class:
Date:

Question #1

A radioactive substance decays at a rate of 25% every 10 years. Which equation represents the amount of the substance (*S*) remaining from 100 grams after 300 years?

A $S = 100(0.25)^{300/10}$

B $S = 300(0.25)^{100/10}$

C $S = 100(0.75)^{300/10}$

D $S = 300(0.75)^{100/10}$

Question #2

Bushra purchases a car for $12,900. The car will depreciate at a rate of 15% each year.

After how many years will the value of the car be less than $3,000?

A 6 years

B 7 years

C 8 years

D 9 years

Question #3

Marianne bought a car at a price of $18,000. The price of the car depreciated at a constant rate of *r* % per year. The price of the car after 2 years was $13,005.

Which equation can be used to find the rate of depreciation?

A $13{,}005 = 18{,}000(1 + r)^2$

B $13{,}005 = 18{,}000(1 - r)^2$

C $18{,}000 = 13{,}005(1 + r)^2$

D $18{,}000 = 13{,}005(1 - r)^2$

Question #4

The population of a certain town is 158,260 and increases exponentially at the rate of 6% every year.

Which equation best represents the population after *x* years?

A $y = 158{,}260\ (0.06)^x$

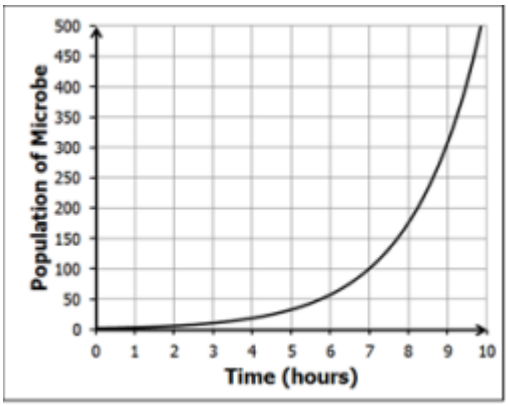
B $y = 158{,}260\ (0.94)^x$

C $y = 158{,}260\ (1.06)^x$

D $y = 158{,}260\ (1.6)^x$

Question #5

A microbiologist is studying a microbe population and finds that the population growth follows the exponential model shown in the graph.



What is the approximate population after 9 hours?

A 50

B 100

C 300

D 500