

NAME: _____

P.I. A.A.9: Analyze and solve verbal problems that involve exponential decay

P.I. A2.A.6: Solve an application which results in an exponential function

1. Which equation models exponential decay?

[A] $y = (3)(-2)^x$ [B] $y = \left(\frac{1}{4}\right)(2)^x$ [C] $y = (3.4)(0.2)^x$ [D] $y = (0.5)(1.2)^x$

2. Which function models exponential decay?

[A] $y = 5 \cdot 3^x$ [B] $y = 3 \cdot 0.5^x$ [C] $y = 0.5 \cdot 5^x$ [D] $y = 0.05 \cdot 3^x$ [E] $y = 0.5 \cdot 3^x$

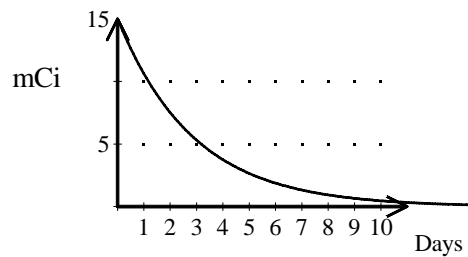
3. You decide to buy a boat that costs \$8550. The normal depreciation for such a boat is 17% per year. If you pay for the boat with a 5 year loan, how much less will the boat be worth after you have paid off the loan?

[A] \$8465.00 [B] \$3367.88 [C] \$5182.12 [D] \$10195.4

4. How many half-lives will occur in 4 days if 1 half-life is 4 hours?

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5. The decay of a sample of radioactive material, measured in milliCuries (mCi) is shown. Calculate the half-life and amount left after 4 days.



[A] half-life 1 day, 3 mCi

[B] half-life 2 days, 5 mCi

[C] half-life 1 day, 7.5 mCi

[D] half-life 2 days, 3.75 mCi

6. Compare the quantities in Column A and Column B.

Column A

Column B

The number of half-lives
occurring in 4 days.

The number of half-lives
occurring in 2 days.

[A] The quantity in Column A is greater.

[B] The quantity in Column B is greater.

[C] The quantities are equal.

[D] The relationship cannot be determined from the information given.

[1] C

[2] B

[3] C

[4] 24

[5] D

[6] D