UNIT 4 • EXPONENTIAL FUNCTIONS   F–IF.4*, F–IF.5*

Lesson 4.5: Graphing Exponential Equations in Context

Practice 4.5: Graphing Exponential Equations in Context   A

Use the following scenario to complete problems 1–5.

> Michelle's father deposited $1,000 into a savings account when she was born. The annual interest rate is 4.5%. Since opening the account, Michelle's father has never deposited or withdrawn money from it.

1. Define your variables. Write an equation to model the situation.

2. Create a table for years 0 through 8. What does year 0 represent?

3. Sketch the graph of the situation.

4. What age will Michelle be when her account reaches more than $2,000?

5. Suppose Michelle can withdraw money from the account at age 18. How much will she have?

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Use the following scenario to complete problems 6–10.

You drink a beverage that contains 120 mg of caffeine. The caffeine is eliminated from your system at a rate of about 12% per hour.

6. Define your variables. Write an equation to model the situation.

7. Create a table for hours 0 through 5. What does hour 0 represent?

8. Sketch the graph of the situation.

9. When will you have about half the caffeine in your system?

10. Will there be any caffeine in your system after 1 day?