YOU TRY IT! #2

Caleb's parents set up a checking account for him before college so that he will be able to pay the utilities for his apartment. Caleb keeps track of his spending in the table below. Time represents the number of months he has been in his apartment and the checking account balance is measured in dollars.

TIME (MONTHS)	0	1	2	3	4
BALANCE	$1550	$1355	$1170	$978	$791

Generate a linear function model for this situation. Based on your model, when will the checking account balance dip below $100?

PRACTICE/HOMEWORK

For the following sets of data, calculate the average finite difference, and use that to determine the slope of a linear function that could model the data.

1.

x	y
1	15.3
2	25.3
3	35.2
4	45.4
5	55.2
6	65.3

2.

x	0	1	2	3	4	5	6
y	50	47.2	44.3	41.5	38.5	35.6	32.5

3.

x	1	2	3	4	5
y	14.25	14.05	15.35	16	16.55

For problems 4 – 6, determine a linear function to model the situation.

FINANCE

4. Madeleine has a gift card to her favorite coffee shop. The table below shows how much is remaining on the gift card after each purchase at the coffee shop.

PURCHASES	0	1	2	3	4	5
BALANCE (DOLLARS)	40	35.68	31.22	26.97	22.65	18.40

SCIENCE

5. Gus records the mileage on his car, so he can determine his average mileage per month. Below are some of his collected data.

TIME (MONTHS)	1	2	3	4	5	6
MILEAGE (MILES)	11,540	12,482	13,570	14,670	15,682	16,757

FINANCE

6. David is purchasing apps for his cell phone. The table below shows how his total cost changes with each app that he selects.

NUMBER OF APPS PURCHASED	1	2	3	4	5
COST (DOLLARS)	1.25	2.50	3.75	5.00	6.25

Use the following situation to answer problems 7 – 10.

SCIENCE

Charlie is measuring his little brother's height throughout the year to see how much he grows. The table below shows how his height changes during the first 5 months.

TIME (MONTHS)	0	1	2	3	4	5
HEIGHT (INCHES)	54	54.20	54.45	54.85	55.10	55.25

7. Write a function rule to model the situation.

8. What do the slope and y-intercept from your function rule mean in the context of this situation?

9. Use your model to predict the height of Charlie's brother after a year.

10. In what month will his height be approximately 56 inches?

Use the following situation to answer problems 11 – 13.

CRITICAL THINKING

Jeff noticed that the nutrition information on his box of cereal states that there are 14 servings in the cereal box. He decided to put their claim to the test. He recorded the weight of the remaining cereal after each serving, as shown in the table below.

NUMBER OF SERVINGS	0	1	2	3	4	5
WEIGHT OF REMAINING CEREAL (OUNCES)	14	12.7	11.6	10.7	9.5	8.4

11. Write a function rule that models the situation.

12. What do the slope and y-intercept from your function rule mean in the context of this situation?

13. Was Jeff able to confirm the claim on the cereal box by eating 14 servings? Explain your answer.

Use the following situation to answer problems 14 – 17.

SCIENCE

Bob is tracking a hurricane moving toward the coast of Florida. The table below shows its distance from land over time.

TIME (HOURS)	0	1	2	3	4
DISTANCE (MILES)	704	684	663.7	644.2	624.4

14. Write a function rule that models the situation.

15. What do the slope and y-intercept from your function rule mean in the context of this situation?

16. About how far will the hurricane be from land after 24 hours?

17. Approximately when will the hurricane make landfall?

Use the following situation to answer problems 18 – 19.

CRITICAL THINKING

Maddie is running a 10-K (10 kilometer) race. She wears an electronic chip that tracks her progress throughout the race. She runs at a fairly steady pace throughout the race, as shown in her chip data below.

DISTANCE (KILOMETERS)	0	1	2	3	4	5
TIME (MINUTES)	0	4.1	7.9	11.8	15.5	19

18. Write a function rule that models the situation.

19. If Maddie continues at this rate, will she beat her previous best time of 37.5 minutes? Explain your answer.

Use the following situation to answer problems 20 – 21.

FINANCE

Nikki has a job as a waitress where she gets an hourly wage plus tips. The table below shows her total earnings for working one weekend.

TIME WORKED (HOURS)	1	2	3	4	5
TOTAL EARNED (DOLLARS)	9.3	19.3	30.73	43.23	56.33

Nikki calculates that the function $f(x) = 11.8x - 2.5$ models her earnings over time. She understands that the slope of 11.8 means she earned an average of about $11.80 per hour. However, she is uncertain about why she has a negative y-intercept in her function equation, since she didn't earn -$2.50 for working 0 hours.

20. Is her equation correct? Explain why or why not.

21. Since she earned $0 for working zero hours, she now decides to include the point (0, 0) in her data set. How will this affect her function equation to model the situation?