Course 3 Unit 5 Practice

LESSON 34-1

The data in the table below shows the number of chirps that a striped ground cricket makes per second at various outside temperatures.

Temp.	88.6	71.6	93.3	84.3	76.3	75.1	69.7	71.6	69.4	83.3	79.6	82.6	80.6	83.5
Chirps /Sec	20.0	16.0	19.8	18.4	14.4	15.5	14.7	15.7	15.4	16.3	15.0	17.2	16.0	17.0

1. Construct a scatterplot using the temperature as the independent variable and the chirps per second as the dependent variable.

2. Describe any patterns you notice in the table or scatterplot.

Answer true or false for Items 3 and 4 below. Explain your choice.

3. Crickets chirp more often when it is warm outside.

4. When it is cooler outside, crickets chirp less often.

5. Construct viable arguments. Skye looked at the scatterplot she constructed using the data above and determined that crickets chirp the least when the temperature is 76°. Is she correct? Explain why or why not.

LESSON 34-2

The data in the table below shows the number of teaspoons of sugar and the calories in one serving of each food or drink.

Calories per Serving	Teaspoons of Sugar per Serving
240	17
152	10
140	9
290	12
180	8
280	16
220	16
260	15
580	21

6. Construct a scatterplot for the data above with the number of calories on the x-axis and the number of teaspoons of sugar on the y-axis.

7. **Construct viable arguments.** Based on the scatterplot that you constructed, is there a relationship between the number of calories in one serving and the amount of sugar in one serving of the same food? Justify your response.

10. Would you describe the relationship between calories and sugar content per serving as strong, moderate or weak? Explain.

8. Does the relationship between calories and sugar content per serving appear to be linear?

11. **Make use of structure.** What do the relationships you noticed indicate about the foods that you eat?

9. Would you describe the relationship between calories and sugar content per serving as positive or negative?

LESSON 35-1

The data in the tables below show information about a variety of popular fast food sandwiches.

Table A:
Sandwich Nutrition Information

Total Fat (g)	Total Calories
9	260
13	320
21	420
30	530
31	560
31	550
34	590
25	500
28	560
20	440
5	300

Table B:
Sandwich Type

Hamburger
Cheeseburger
Quarter Pound Hamburger
Quarter Pound Cheeseburger
Double Patty Burger
Sandwich Special
Sandwich Special with Bacon
Deep Fried Chicken
Fish
Grilled Chicken
Light Grilled Chicken

Table C:
Sandwich Calories and Number Sold/Consumed

Total Calories	Number Consumed in One Day
260	225
320	250
420	567
530	886
560	201
550	389
590	982
500	138
560	765
440	125
300	115

12. Which table(s) above is/are bivariate data? Explain your reasoning.

13. Construct viable arguments. Which of the table(s) showing bivariate data would you expect to have a positive association? Explain your thinking.

14. Construct a scatterplot for the table above showing the fat grams and total calories of sandwiches.

15. What associations do you notice in the scatterplot you constructed?

16. Make sense of problems. Describe how adding a sandwich with 9 grams of fat and 450 calories to the scatterplot you constructed would change any of the associations you noticed.

LESSON 35-2

NBA Team	Average Attendance	Price per Ticket
Atlanta	13993	$20.06
Chicago	18404	$21.98
Dallas	16868	$17.05
LA Lakers	17378	$29.18
Miami	15008	$17.60
New York	17815	$22.70
Phoenix	14114	$16.59
Sacramento	17014	$16.96
San Antonio	14722	$16.79
Seattle	12244	$18.11
Utah	12616	$18.41
Denver	12668	$17.40
Detroit	21454	$24.42

17. Using the attendance and ticket cost data in the table above from some NBA (National Basketball Association) teams, construct a scatterplot.

18. Add a trend line to the scatterplot you constructed in Item 17.

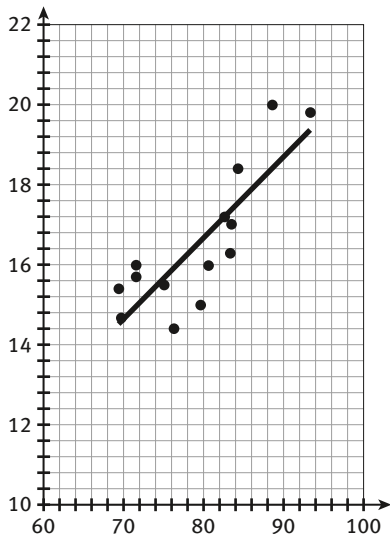**19. Attend to precision.** Which of the trend lines shown below is the most accurate? Explain your choice.
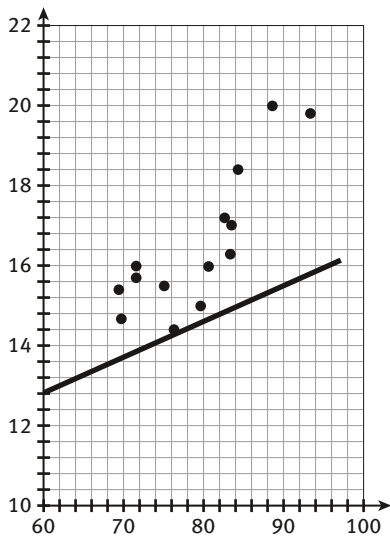

Figure A

Figure B

20. Write an equation for the trend line on the scatterplot above for which the trend line is most accurate.

21. The equation $y = 30x + 15$ represents the trend line shown on a scatterplot. What is the slope of the trend line?

22. Use the equation of the line given in Item 21 to determine y when $x = 12$.

LESSON 35-3

Country	Life Expectancy	People/Physician
Canada	76.5	449
China	70	643
India	57.5	2471
Indonesia	61	7427
Iran	64.5	2992
Italy	78.5	233
Japan	79	609
Kenya	61	7615
Korea, North	70	370
Korea, South	70	1066
Mexico	72	600
South Africa	64	1340
Taiwan	75	965
Thailand	68.5	4883
United Kingdom	76	611
United States	75.5	404

23. Construct a scatterplot of the data above comparing life expectancy and the number of residents per doctor in the country.

24. Attend to precision. Add a trend line to the scatterplot you constructed in Item 23 and write an equation for this trend line.

25. Tell what the slope of this line means in this situation.

26. Tell what the *y*-intercept of this line means in this situation.

27. Make use of structure. Use your equation to find the life expectancy of a resident in a country where there are 3000 residents per doctor.

LESSON 36-1

State	Participation Rate 2004	Mean SAT I Math
New Hampshire	80%	521
D.C.	77%	476
Pennsylvania	74%	502
Georgia	73%	493
North Carolina	70%	507
Florida	67%	499
South Carolina	62%	495
Hawaii	60%	514
Oregon	56%	528
California	49%	519
Nevada	40%	514
Arizona	32%	524
Ohio	28%	542
Colorado	27%	553
Idaho	20%	539
Kentucky	12%	557
Illinois	10%	597
Missouri	8%	585
Arkansas	6%	555
Mississippi	5%	547
North Dakota	5%	601

28. Construct a scatterplot of the data in the table above showing the participation rates and Math scores of students taking the SAT test in 2005.

29. Find the equation of the median-median line for this data.

30. Draw the median-median line on the scatterplot you constructed in Item 28.

31. What associations do you notice for the median-median line of this data set? Explain your choices.

32. Make sense of problems. Draw a scatterplot showing 15 data points for which a linear model would not be a good way to describe the relationship.

LESSON 36-2

Temp.	88.6	71.6	93.3	84.3	76.3	75.1	69.7	71.6	69.4	83.3	79.6	82.6	80.6	83.5
Chirps /Sec	20.0	16.0	19.8	18.4	14.4	15.5	14.7	15.7	15.4	16.3	15.0	17.2	16.0	17.0

33. Write the equation for the median-median line of this data set.

34. Explain the meaning of the slope of the median-median line in this situation.

35. Explain the meaning of the *y*-intercept of the median-median line in this situation.

36. Make use of structure. Use the equation of the median-median line you wrote in Item 33 to predict the number of chirps per second when the temperature is 62°.

37. Construct viable arguments. Are there situations for which your equation would not apply? Explain your choices.

LESSON 37-1

	Favorite Food: Hamburger	Favorite Food: Pizza	Favorite Food: Spaghetti	Total
Sixth Grade	15	36	24	75
Seventh Grade	18	22	38	78
Eighth Grade	16	12	46	74
Total	49	70	108	227

38. Complete the following table by entering the missing percentages for favorite foods at each grade level.

	Favorite Food: Hamburger	Favorite Food: Pizza	Favorite Food: Spaghetti	Total
Sixth Grade				100%
Seventh Grade				100%
Eighth Grade				100%
Total				

39. Make sense of problems. Travis wants to create a segmented bar graph for this information. He says that each bar will have four segments. Is Travis correct? Explain why or why not.

40. Construct a segmented bar graph that shows the percentages of students who say each food is their favorite at each grade level.

41. For which of the three grade levels shown is pizza the students' favorite food?

42. What is the least favorite of the three foods in seventh grade?

LESSON 37-2

43. Fill in the remaining cells in the table.

	Packed a Lunch	Ate Hot Lunch	Ate Salad Bar	Total
Girls	45		54	267
Boys		197	37	256
Adults	23	12		62
Total	90	377	118	

44. Complete the table below by entering the percentages in each row.

	Packed a Lunch	Ate Hot Lunch	Ate Salad Bar	Total
Girls				100%
Boys				100%
Adults				100%

45. What percentage of boys packed a lunch? What percentage of girls packed a lunch?

46. Use the percentages from Item 44 to create a segmented bar graph that compares the types of lunches students and staff eat.

47. Construct viable arguments. Is there evidence of an association between what type of lunch someone eats and his or her gender? Justify your response.