Algebra 1 Unit 6 Review   Name: __Key__
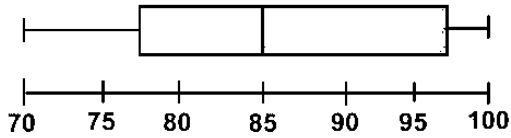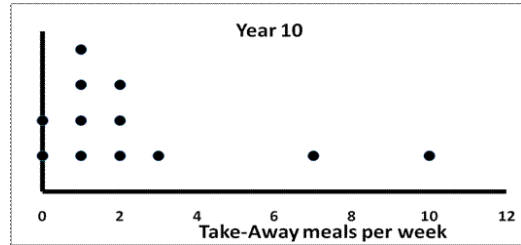
1. Reading box plot. Find the median, quartile one, minimum, maximum, and quartile three.
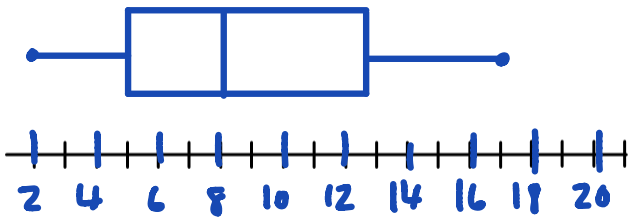
min = 70   Q₁ = 77   Q₂ = 85   Q₃ = 97

max = 100

70 75 80 85 90 95 100

2. The dot plots represents what data set?

0, 0, 1, 1, 1, 1, 2, 2, 2, 3, 7, 10
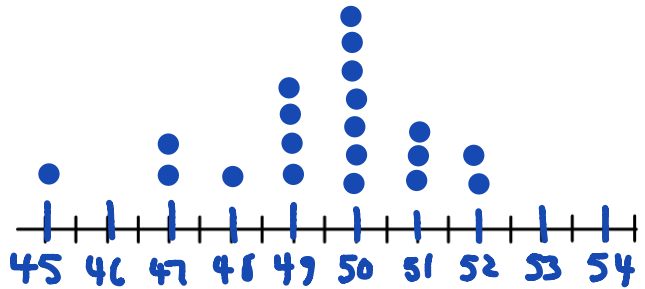

Year 10

0   2   4   6   8   10   12
Take-Away meals per week

3. Find the median, quartile one, quartile three, and interquartile range. Then create a box plot.
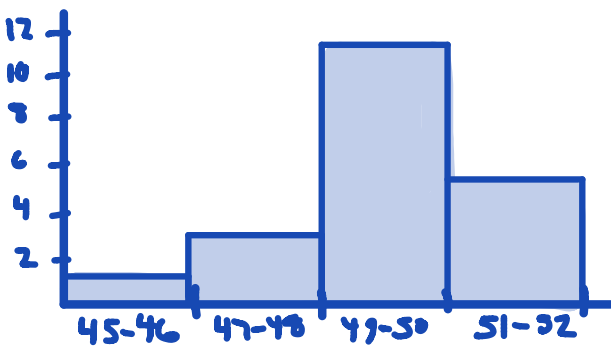
$$12, 9, 7, 17, 13, 4, 2, 6$$

2 4 6 8 10 12 14 16 18 20

4. Create a dot plot for the data.

$$45, 47, 47, 48, 49, 49, 49, 49, 50, 50,$$
$$50, 50, 50, 50, 50, 51, 51, 51, 52, 52$$

45 46 47 48 49 50 51 52 53 54

5. Create a histogram for the data.

$$45, 47, 47, 48, 49, 49, 49, 49, 50, 50,$$
$$50, 50, 50, 50, 50, 51, 51, 51, 52, 52$$

12
10
8
6
4
2

45-46   47-48   49-50   51-52

6. Determine if there are any outliers in the data set. Which measure of center would be most appropriate?

$$5, 6, 1, 4, 3, 9, 11, 29, 5$$

29 outlier

median

5=7. Determine if there are any outliers in the data set. Which measure of center would be most appropriate?

$$23, 43, 33, 21, 19, 34, 37, 40$$

No outliers

Mean

8. Find the mean and the mean absolute deviation.

$$76, 81, 93, 54, 55, 23, 41$$

$\bar{X} = 60.4 \approx 60$

$|76-60| = 16$
$|81-60| = 19$
$|93-60| = 33$
$|54-60| = 6$
$|55-60| = 5$
$|23-60| = 37$
$|41-60| = 19$
_____
135

$\dfrac{135}{7}$

MAD = 19.3

Gender	Favorite Animal			
	Monkey	**Zebra**	**Cat**	**Ant**
Male	36	52	21	2
Female	45	30	19	7

9. What is the joint frequency of females who like cats?

19

10. What is the marginal frequency of zebras?

82

11. What percent of males like monkeys?

$\frac{36}{111} = 32\%$

12. What percent of students like zebras?

$\frac{82}{212} = 39\%$

Gender	Known Languages			
	English	**Spanish**	**French**	**Latin**
Male	121	73	30	20
Female	117	91	22	14

13. What is the joint frequency of males who know French?

30

14. What is the marginal frequency of males?

244

15. What percent of students know French?

$\frac{52}{488} = 11\%$

The following table comes from a survey of 100 hikers on the areas of hiking preferred. Complete the table.

Hiking Area Preference

Gender	The Coastline	Near Lakes & Streams	On Mountain Peaks	Total
Female	22	17	**6**	45
Male	**6**	**20**	24	50
Total	**28**	37	**30**	**95**

16. What percent of people surveyed prefer to hike on mountain peaks?

$\frac{30}{95} = 32\%$

17. What percent of females surveyed prefer to hike the coastline?

$\frac{22}{45} = 49\%$

18. What is the probability that a male prefers to hike near lakes and streams?
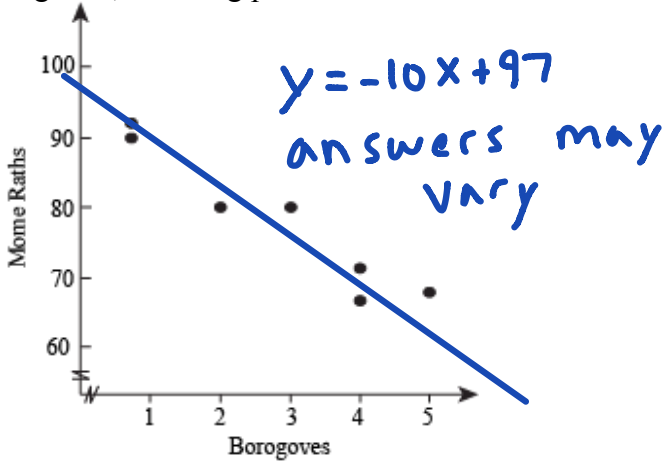
$\frac{20}{50} = 40\%$

19. What is the marginal probability of people who prefer to hike the coastline?
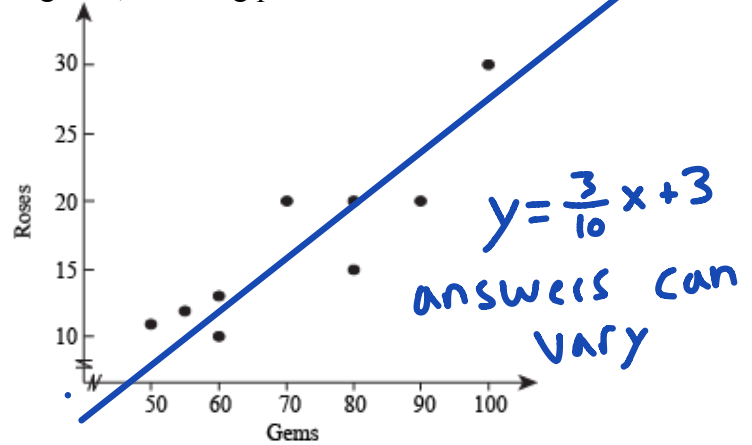
$\frac{28}{95} = 29\%$

20. What percent of people who prefer to hike the coastline are female?

$\frac{22}{28} = 79\%$

21. Write an equation that could be used to approximate the data in the scatter plot. Is the correlation; strong negative, strong positive, weak negative, or strong positive?

$y = -10x + 97$
answers may vary

Mome Raths (y-axis: 60, 70, 80, 90, 100)
Borogoves (x-axis: 1, 2, 3, 4, 5)

22. Write an equation that could be used to approximate the data in the scatter plot. Is the correlation; strong negative, strong positive, weak negative, or strong positive?

$y = \frac{3}{10}x + 3$
answers can vary

Roses (y-axis: 10, 15, 20, 25, 30)
Gems (x-axis: 50, 60, 70, 80, 90, 100)

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23. A data set has a correlation of -0.876. What can be said about the data set?

negative, strong

24. A data set has a correlation of 0.342. What can be said about the data set?

positive, weak

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25. Mike puts money in the bank every month. He can approximate the amount he saves using the function $f(x) = 105x + 570$. What can be said about the y intercept?

The starting amount of the account is $570.

26. The growth of ivy can be estimated by the function $f(x) = 4.5x + 13$. What can be said about the slope?

The ivy grows at a rate of 4.5

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27. Which of the following variables would you expect there to be a negative correlation?

The longer the day, the higher the temperature.
Or
As days get longer, nights get shorter.

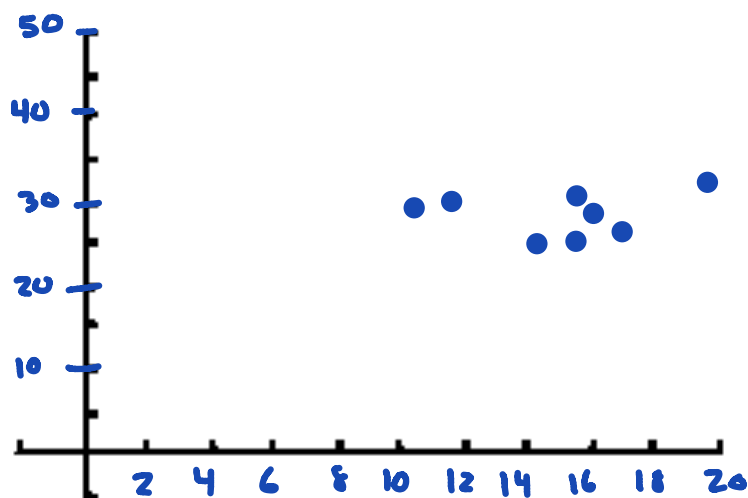28. Which of the following variables would you expect there to be a positive correlation?

The longer you live, the heavier you weigh.
Or
The longer you live, the less hair you have on your head.

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29. Create a scatter plot for the data set below and find a line of best fit.

x	y
15	30
15	25
14	24
11	30
16	27
17	26
19	32
10	30
22	19

(y-axis: 10, 20, 30, 40, 50)
(x-axis: 2, 4, 6, 8, 10, 12, 14, 16, 18, 20)

30. The data below represents the life expectancy of the population of the Unit States from 2001 to 2011, based on years of birth. **Let the year 2001 be x = 0**, and let x represent the number of years since 2001.

Year	2001	2003	2005	2007	2009	2011
Life exp.	76.24	75.49	74.75	73.00	72.24	71.49

a) What is the best fitting **linear** line for the data?

$$y = -.504x + 1084$$

b) Based on the data, what is the life expectancy for someone born in **2020**?

65.92

c) Why do you think the life expecrtancy is decreasing?

According to the slope of the linear regression line, life expectancy is decreasing.

31. Below is a table that shows the amount of sugar (grams) left in your body after eating Chipotle. Answer the following questions about the data.

Time (hours)	.5	1.5	2	3	3.75	5
Sugar (grams)	20.05	5.12	2.5	1.25	0.46	0.35

a) What is the best fitting **exponential** model for the data?

$$y = (21)(.40)^x$$

b) Based on the data, when will your sugar level be **4** grams?

1.8 hours

32. The table below shows my income from ages 26-30. Use the data to answer the following questions.

Age	26	27	28	29	30
Income ($1000)	16.8	19.1	23.3	25.8	33.9

A. Find a linear equation for the data.

$$y = 4.09x - 90.74$$

B. What does the y-intercept mean?

Starting income at birth

C. What does the slope mean?
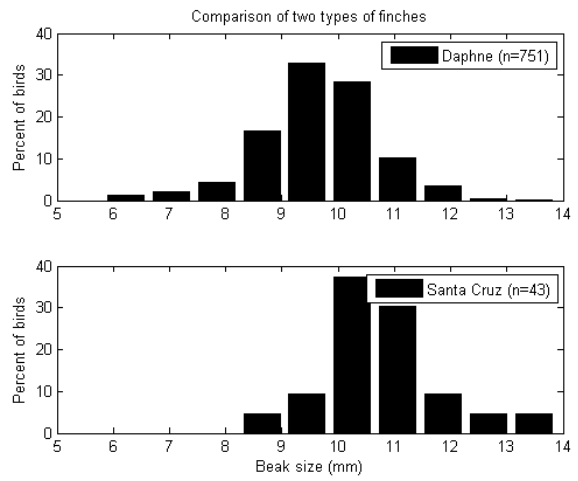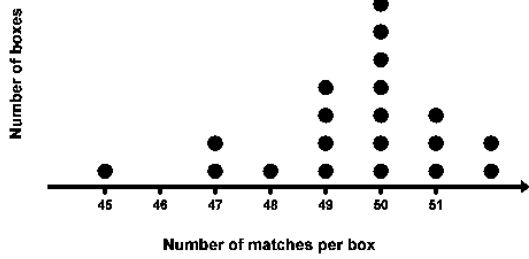
Avg salary increase per year

D. Using your equation, how much will I make when I'm 40 years old?

$72,860.00

E. Determine how old I will be when I make $60,000.

32 years old

33. The dot plots represents what data set?

Comparison of two types of finches

34. Which graph has a greater variation?

35. Which graph has a greater mean?