

Box 1

Chapter 20 Review  
Pages 305-306

	Mean	Median
1.	21	20
2.	18.1	13
3.	\$275	\$280
4.	115 points	
5.	\$400	
6.	14 pizzas	
7.	$13\frac{1}{3}$ ounces	
8.	10 points	

- 9. 63 inches
- 10.  $\approx 5.18$  light years
- 11.  $\approx 4.65$  hertz
- 12.  $\approx 5.07$  milligrams
- 13.  $\approx 13.36$  bushels

- 14. median: 20 mph  
range: 29 mph  
interquartile range: 13 mph

A median of 20 mph means that only half of the students are driving 20 mph or slower, and the other half are driving in the "unacceptable" range, according to the principal. If over 20 mph is "unacceptable," then the school shouldn't accept it and should issue speeding tickets.

15. positive

16. negative

Chapter 20 Test  
Pages 307-308

- |      |      |      |      |       |       |       |
|------|------|------|------|-------|-------|-------|
| 1. A | 3. B | 5. D | 7. C | 9. A  | 11. A | 13. B |
| 2. C | 4. A | 6. D | 8. C | 10. D | 12. A |       |

Chapter 21 Using Algebra for Data Analysis  
Page 311 Modeling Data with Linear Functions

- 1. No
- 2. Yes
- 3. No
- 4. Yes
- 5. Yes

- 6. Yes
- 7. No
- 8. No
- 9. Yes
- 10.  $y = 12x - 7$

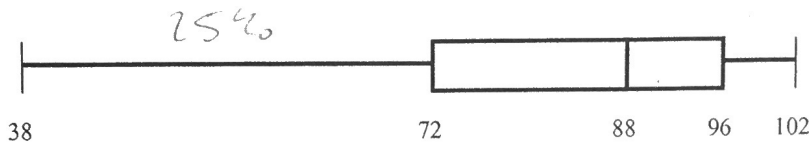
- 11.  $y = -60x + 168$
- 12.  $y = \frac{1}{4}x - \frac{1}{2}$
- 13.  $y = 7x - 5$
- 14.  $y = -2x + 246$
- 15.  $y = \frac{40}{3}x + 80$

Name Kely Period \_\_\_\_\_

**Box & Whisker Worksheet**

For questions 1 – 5, refer to the box & whisker graph below which shows the test results of a math class.

**Test Scores (as %) for 6<sup>th</sup> Period**



102  
75%  
88  
25%

1. What was the high score on the test?
2. What percent of the class scored above a 72?
3. What was the median score on the test?
4. What percent of the class scored between 88 & 96?

5. Do you think that this test was too hard for the students? Explain.

No - Most students scored very high marks - with a few (25%) below 72, 1 outlier (38)

For questions 6 – 10 refer to the box & whisker graph below that shows how much time was spent per night on homework for sophomore class at a certain high school during September.

**Average Minutes Per Night Spent On Homework**



25%  
40  
0  
25%

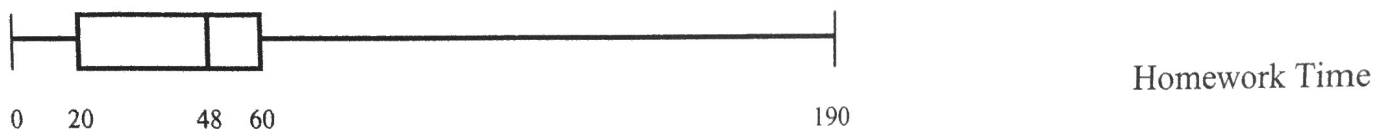
6. What percent of the sophomores spend more than 60 minutes on homework per night?
7. What is the range of times that the middle 50% of the sophomores spend on homework per night?
8. How many sophomores do not do homework?
9. What percent of the sophomores spend less than 20 minutes per night on homework?

10. Would you expect the mean number of minutes per night to be higher or lower than the median? Explain.

Higher - the upper extreme (190) would bring the mean up a lot

For questions 11 – 18, refer to the box & whisker graphs below that compare homework time per night with TV time per night for the same group of sophomores.

### TV & Homework Minutes per Night



75% 11. What percent of the sophomores watch TV for at least 15 minutes per night?

110 min 12. What is the 3<sup>rd</sup> quartile for the TV time data?

13. Is it more common for a sophomore at this high school to spend more than 1 hour on homework or more than 1 hour watching TV? Explain.

More than 1 hour watching TV - 50% with TV, vs. 75% with Homework.

For questions 14 – 18, identify if each statement is true, false, or cannot be determined.

T 14. Some sophomores didn't watch TV that month.

T 15. 25% of the sophomores spend between 48 & 60 minutes per night on homework.

CBD 16. 15% of the sophomores didn't watch TV that month.

T 17. In general, these sophomores spend more time watching TV than doing homework.

T 18. The TV data is more varied than the homework data.

19. Suppose that one family kept track of how many DVDs they rented each month for a two year period. The numbers for each month are shown in the table below. Make a box & whisker graph from this data. This must be on a separate sheet of paper.

J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
3	5	2	8	1	5	0	3	6	4	9	15	3	6	4	1	10	3	8	7	2	9	0	11

**BONUS.** Come up with two data sets that each have 5 elements, each have a mean & a median of 9, but whose box & whisker graphs would be dramatically different.

# Two-way Table's Key

1)  $\frac{\text{Girls}}{\text{Total in Band}} = \frac{9}{17} \approx 53\%$   
 (D)

- 2) ~~A~~  $186 + 78 = 264$ , not  $\frac{1}{2}$   
 (B) more drinks = less sleep 306 ✓  
 (A) more sleep = more drinks? X  
 (D)  $130 \times 2 = 260$  X

3) (D) 7th graders like hockey better than 6th + 8th  
 65 vs. 38

9)  $\frac{\text{malet. running}}{\text{Total}} = \frac{20}{207} \approx 10\%$   
 (A)

4)  $\frac{\text{Total Pizza}}{109}$     $\frac{\text{Salad}}{112}$     $\frac{\text{Hamb.}}{44}$   
 (D)  $112 - 109 = 3$  ✓

10)  $\frac{\text{Poetry}}{\text{Girls}} = \frac{51}{130}$  (B)

5) (D) 45 vs. 56

11)

	$\geq 30$ min	$< 30$ min	T
Siblings	12	8	20
NO Siblings	6	4	10
	18	12	30

6) single (vanilla + choc)  
 $\rightarrow 59$  ✓ (A)  
 smrt  $\rightarrow 41$

(A)

7) (A) 34 vs. 6

12) (D) 67 video games  
 31 read

8)  $\frac{\text{more than 40 min}}{\text{Total students}} = \frac{45}{255} \approx 18\%$   
 (A)

13)  $SS = 102$  vs.  
 $SMALL = 79$

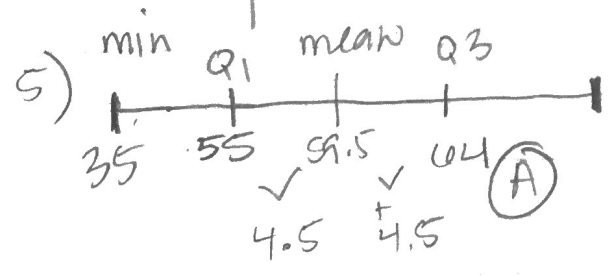
14)  $\frac{\text{male + boy}}{\text{total}} = \frac{34}{130} = 26\% \times$

$\frac{\text{female + girl}}{\text{total}} = \frac{23}{130} = 18\% \checkmark$  (B)

15) Total male = 115  
Total female = 121 (C)

# District Stat Questions Key

1) 14,000 included, brings #s down and spread is greater  
 (D) Std. Dev. ↑



2) \* Scatterplot put eq. in calc  
 $y = .73x - 53.05$   
 Table set → 144, check y values

6) Data set 1 vs. set 2  
 Range = 50      Range = 50  
 \* ranges same  
 \* mean of 2 greater  
 (C)

$\frac{3}{10} = 30\%$  more than 10 kg different  
 (C)

7) (A) Best fit

3) weak positive correlation (B)

8) Profit eq.  
 $85.50 = \text{sale \$ of skis}$   
 (A)

4) \* Diff. in IQR for men vs. women

9) use line of best fit!  
 when  $x = 28$   
 $y \approx 105$  (C)

	women	men
Q1	8743	7765
Q3	8954	7934

10) (D) 45 = hourly charge for repair

$8954 - 8743 = 211$   
 $7934 - 7765 = 169$   
 $211 - 169 = 42$  (A)

11)  $\frac{\text{rise}}{\text{run}} = \frac{1}{2}$  (D)

12) slope = neg  
y-int = positive  
C

17) Std Deviation  
will ↑ because  
more spread out  
True A

13) Neg. correlation  
NO causation  
C

14) Gastonia = 71,000

mean before = 288,125  
mean after = 244

True A

15) Gastonia = 71,000

range before = 425,000  
range after = 460,000

False B

16) Gastonia = 71,000

IQR before = 149  
IQR after = 214.5  
False B

104  
135 > Q1 = 108  
201  
228 > 229 median  
230  
270 > Q3 = 337  
404  
731

337  
-108  
-----  
169

71  
104 > 120.5  
135  
201  
~~228~~ median  
230  
270 > 337  
404  
731

337  
-120.5  
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216.5