

## Unit 8 Describing Data Practice Key

### 8-1 Measures of Center and Spread

1. mean 60.73, median 64, mode 31,76, range 65, IQR 36, outliers none
2. mean 68.86, median 76, mode none, range 58, IQR 52, outliers none
3. mean 55, median 55.5, mode 71, range 74, IQR 40, outliers none
4. mean 50.63, median 47, mode 41, range 71, IQR 25, outliers none
5. mean 41.7, median 38, mode 30, 38, range 78, IQR 15, outliers 99
6. a) 84.18 b) 88 c)88 d) 32 e)16 f) none
7. a) 81, 86      b) mean and median decreased c) 54, 15    d) Both went down, outlier 46,  
range went up, more variable, IQR went down-less variable
8. a) 91    b) 141,no      c) 41

Spiral

- 1) 2400 cm    2) -1      3) B      4) D      5) side length is 16x

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### 8-2 Mean Absolute Deviation

1. 8.67
2. 7
3. data set #1, Higher MAD
4. 1.33
5. 0.67
6. #5, data is more consistent and has a lower MAD

#### Application

Mean 17.16, median 18, mode 18, MAD 4.11, IQR 8, Range 15

Mean 57.57, median 18, mode 18, MAD 69.26, IQR 13, Range 290

Yes

Mean

Range (MAD is a close 2<sup>nd</sup>)

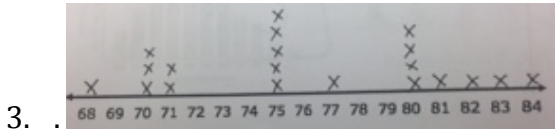
#### Spiral

- 1) (2, 3)                      2) 2.7                      3) B                      4) D

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8-3 Frequency Tables, Dot Plots and Histograms

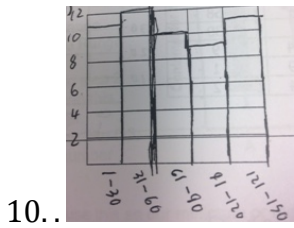
1. c
2. a) 6 b) 9 c) 4



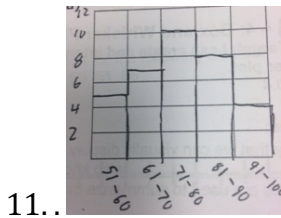
4. Data set A, all the points are the same except 1, which data set A's is higher
5. The same, only the max is different, which won't affect the median
6. Data set A, its max is higher and the mins are the same
7. A
8. a) a student's score b) 3 c) 13 d) 75/90 and 80/85 e) 29 f) 86.21

9. 

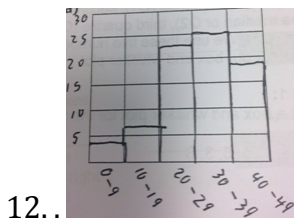
| Test Scores | Frequ |
|-------------|-------|
| 91-100      | 2     |
| 81-90       | 8     |
| 71-80       | 12    |
| 61-70       | 0     |
| 51-60       | 5     |
| 41-50       | 3     |



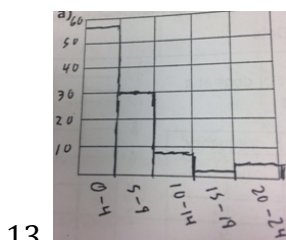
10. b. symmetric c.  $\approx$



11. b. symmetric c.  $\approx$



12. b. skewed left c.  $<$



13. b. skewed c.  $>$

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Spiral:

1) B                    2) parallel lines ; coinciding lines                    3)a.  $a_n=7n - 4$     b.  $a_n=2n - 3$

4)  $a_n= 2n + 3$

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8-4 Box Plots Practice

1. a) 8, 15, 25, 29, 33, 35, 37, 40, 41, 42, 45, 47, 48, 52, 54, 55, 56

b) Min 8  $Q_1=33$   $Q_2=41.5$   $Q_3=48$  max=56



c)

d) 48 miles or less

e) 8 is an outlier

f) mean and median would shift up, range, IQR and MAD would increase

N/A no outliers

2. a) Min=63  $Q_1=66$   $Q_2=67$   $Q_3=69$  Max 71

b) Min=60  $Q_1=66$   $Q_2=69$   $Q_3=70$  Max 71

$Min=60$   $Q_1=66$   $Q_2=69$   $Q_3=70$   $Max=71$



c)

3. a) 71

b) 14

c) 92

4. a) 25%

b) 20-60

c) at least 1

d) 25%

e) higher, box plot is skewed right

5. a) 75%

b) 110

c) watching TV, 50% watch more than an hour, onl 25% spend more than an hour on HW

6. a) True

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- b) Cannot be determined
- c) True
- d) Cannot be determined
- e) True
- f) True
- g) Cannot be determined
- h) Cannot be determined

### Spiral

1.  $f(x) = -3x + 11$

2) D

3)  $f(x) = 4x^2 + 5$

4) 3960 ft/min

5)  $0 \leq x \leq 3$

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8/5 Two Way Frequency Tables

1. b) 20
2. d) 12
3. 16%
4. 50%
5. 40%
- 6.

| Activity | Jog | Fly Kites | Picnic | Total |
|----------|-----|-----------|--------|-------|
| Male     | 9   | 4         | 10     | 23    |
| Female   | 11  | 1         | 15     | 27    |
| Total    | 20  | 5         | 25     | 50    |

7.

| Activity | Jog  | Fly Kites | Picnic | Total |
|----------|------|-----------|--------|-------|
| Male     | 0.18 | 0.08      | 0.20   | 0.46  |
| Female   | 0.22 | 0.02      | 0.30   | 0.54  |
| Total    | 0.40 | 0.10      | 0.50   | 1.00  |

8.

|          | Male | Female | Total |
|----------|------|--------|-------|
| Blonde   | 5    | 40     | 45    |
| Brunette | 15   | 40     | 55    |
| Total    | 20   | 80     | 100   |

9. 45%
10. 40%
11. 50%
12. 89%
- 13.

|       | Male | Female | Total |
|-------|------|--------|-------|
| Walk  | 34   | 46     | 80    |
| Car   | 28   | 17     | 45    |
| Bus   | 15   | 12     | 27    |
| Bike  | 22   | 17     | 69    |
| Total | 129  | 92     | 221   |

14. 50%
15. 21%
16. 20%

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### Spiral

1. C
2.  $(12x - 8y)(12x + 8y)$
3.  $16(3x^2 + 2x + 9)$
4.  $3(2x^2y^2 - 3xy + 14)$
5.  $-4/3$  and 1

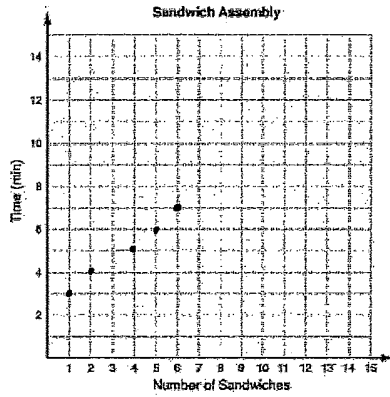


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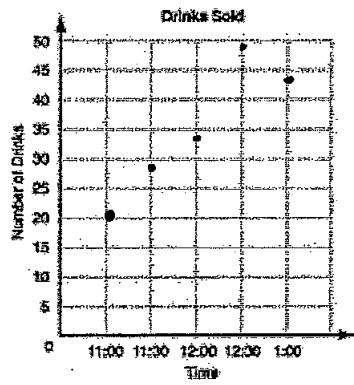
## 8.6 Scatter Plots and Lines of Best Fit

### Scatter Plot Practice

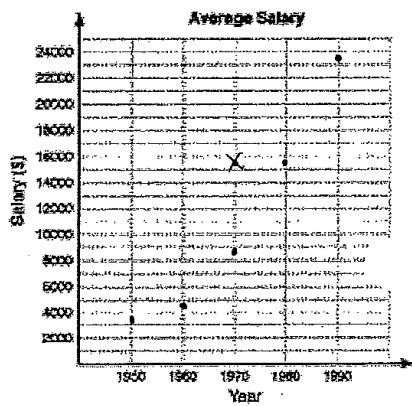
1.



2.



3.



## Unit 8 Describing Data Practice Key

### Correlation coefficient practice

1.  $r=0$
2.  $r=-0.5$
3.  $r=0.4$
4.  $r=0.8$
5.  $r=-0.9$
6.  $r=0$

### Identify the data sets as having a positive, a negative or no correlation

7. positive
8. no correlation
9. positive
10. positive
11. negative
12. no correlation
13. no correlation
14. correlation
15. correlation
16. causation
17. causation

### Line of Best Fit Practice

1. equation  $y = 6.09x + 63.93$     expected grade 100
2. A)                      B)  $y = 0.1x + 96.7$
3. 1264 thousand powerboats
4. 3.5 thousand or 3500 boxes

### Practice: Identifying Linear, Quadratic or Exponential Models

- 1) Linear
- 2) exponential
- 3) quadratic
- 4) linear
- 5) exponential

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6) quadratic

### Correlation of Coefficient w/Technology

- 1) Equation:  $y=0.16x-0.3$   $r=0.99$  Tip \$1.38
- 2) Equation:  $y=6.1x+63.9$   $r=0.99$  100.5 but Range maxes out at 100, so 100
- 3) Equation:  $y=4.36x-156.14$   $r=0.9991$  (almost 1!) 170.86 lbs
- 4) Equation:  $y=0.42x-19.8$   $r=0.9972$  Size 16 (FYI He actually wears a size 22!!!)

### Spiral

1. (5, -36)
2. A
3. 10 and 50
4. 2 feet
5.  $\frac{A}{\pi} = r$