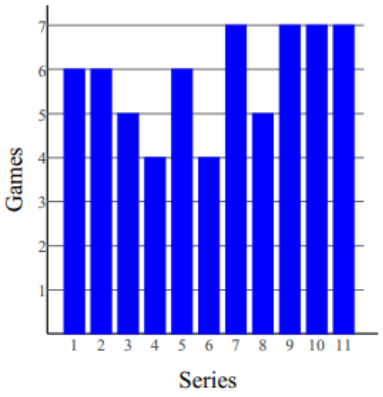
Prob & Stats Name_____ ID: 1

HW #12 - Test REVIEW Date_____ Period____

ANSWERS

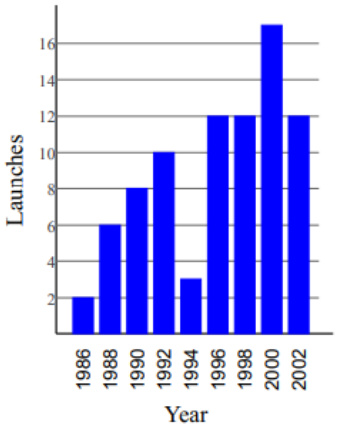
Find the median, mean, lower quartile, upper quartile, and interquartile range for each data set.

1) Games per World Series



Median = 6, Mean = 5.82,
$Q_1 = 5$, $Q_3 = 7$ and IQR = 2

2) European Spacecraft Launches

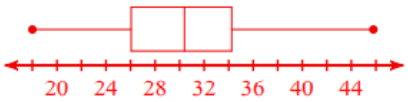


Median = 10, Mean = 9.11,
$Q_1 = 4.5$, $Q_3 = 12$ and IQR = 7.5

Draw a box-and-whisker plot for each data set.

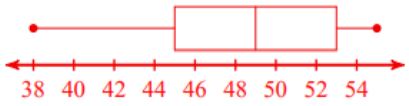
3) Minutes to Run 5km

45.8	34.1	33.3	18	37
30.6	31.5	30.4	25.8	34.4
28	26	27.8	26	26.1
27.8	43.8			



4) Test Scores

48	49	54	53	50	45	55
50	38	45	45	53	52	45
44						



Draw a stem-and-leaf plot for each data set.

5) Nobel Laureates

Name	Age
Eric Stark Markin	56
Christopher Albert Sims	69
Jean-Marie Pierre Lehn	48
Rita Levi-Montalcini	77
Paul Delos Boyer	79
Françoise Barré-Sinoussi	61

Name	Age
Robert Geoffrey Edwards	85
Derek Alton Walcott	62
Steven Weinberg	46
Günter J. Blobel	63
Jules Alphonse Hoffmann	70

Name	Age
James Alexander Mirrlees	60
David Morris Lee	65
Eric Francis Wieschaus	48
Peter Courtland Agre	54
Martin John Evans	66

Stem	Leaf
4	6 8 8
5	4 6
6	0 1 2 3 5 6 9
7	0 7 9
8	5

Key: 5 | 4 6

Indicates that the age of two Nobel Laureates were

54 and 56 years old, respectively

6) Basketball Tournament

School	Appearances
Mississippi State	10
Hampton	5
Saint Louis	9
Loyola Marymount	4
Villanova	34
George Mason	6

School	Appearances
Iowa State	17
Vermont	5
Marquette	31
North Carolina Central	1
Colorado State	10
Kentucky	54

School	Appearances
Wisconsin	21
Sam Houston State	2
Western Carolina	1
Drexel	4
South Alabama	8

Stem	Leaf
0	1 1 2 4 4 5 5 6 8 9
1	0 0 7
2	1
3	1 4
4	
5	4

Key: 2 | 1

Indicates that the number of appearances for one team, Wisconsin, was 21 tournament appearances

Solve each percent problem.

7) 78.9 is 2% of what?

3945

8) 103.2 is what percent of 58.2?

177.3%

9) What percent of 98 is 139?

Use the proportion

$$\frac{\%}{100} = \frac{part}{whole}$$

$$\frac{p}{100} = \frac{139}{98}$$

so $98p = 13900$

$p = 141.84$

139 is 141.84% of 98

10) What is 2.6% of 32.4?

Use the proportion

$$\frac{\%}{100} = \frac{part}{whole}$$

$$\frac{2.6}{100} = \frac{part}{32.4}$$

or $0.026(32.4) = \boldsymbol{p}art$

$p = 0.8424$

0.8424 is 2.6% of 32.4

Find the median and mean for each data set.

11) Annual Precipitation (Inches)

Stem	Leaf
1	4
2	1 4 6
3	1 1 2
4	2 4 5 6 7
5	4 5 8
6	0 6

Key: 3|1 = 31

Median = 44 and Mean = 40.94

12) Per Capita Income by Country

Stem	Leaf
0	1 1 2 2 2 2 5 5 6 6 7 7
1	
2	3 4
3	3
4	3

Key: 2|3 = 23,000

Median = 5,500 and
Mean = 10,562.5

Convert the z-scores to percentiles (*answers on next page*)

13) *z-score* of 1.24

14) *z-score* of -0.87

15) *z-score* of 0

16) *z-score* of 2.06

Convert the percentiles to *z-scores*

19) the 27^{th} percentile

20) the 90^{th} percentile

21) a z-score that corresponds to the top 20 percent

HW #12 - ANSWERS

Convert the z-scores to percentiles

13) *z-score* of 1.24

is the same as 0.8925 which is

approx. the **89th** percentile

14) *z-score* of −0.87

is the same as 0.1922 which is

approx. the **19th** percentile

15) *z-score* of 0

is the same as 0.5000 which is

exactly the **50th** percentile

16) *z-score* of 2.06

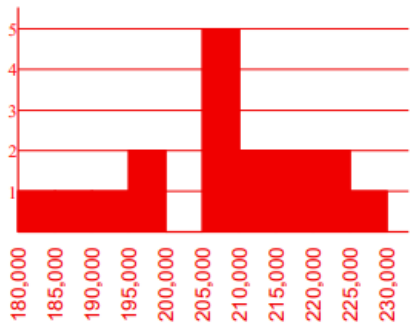
is the same as 0.9803 which is

approx. the **98th** percentile

Draw a histogram for each data set. (Use intervals of $5000 for #17)

17) Single Family Home Prices

209,700	208,500	211,300	211,500
196,900	207,000	215,300	223,300
227,600	195,200	186,300	181,100
190,100	206,400	216,700	208,200
221,400			



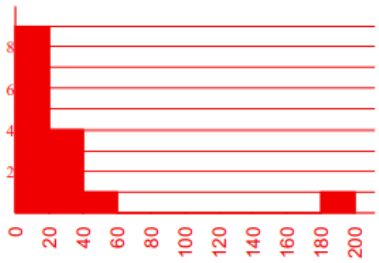
18) Average Lifespan

Animal	Years
Gorilla	20
Newt	7
Gouldian finch	6
Galapagos Land Tortoise	193

Animal	Years
Cow	22
Chicken	15
Sheep	15
Caiman	28

Animal	Years
Conure	25
Bee (Worker)	1.5
Golden Hamster	4
Humming Bird	8

Animal	Years
African Grey Parrot	50
Rabbit	9
Whistling Duck	15



Convert the percentiles to *z-scores*

19) the 27th percentile

First, find the decimal form,

Which is 0.2700 on Table

Closest decimals are

0.2709 and 0.2676

Now convert to *z-scores*

-0.61 *and* -0.62

Last, Describe in context

The 27th percentile is the

Same as a z-score of approx.

$z = \mathbf{-0.615}$

20) the 90th percentile

Find the decimal form,

Which is 0.9000 on Table

Closest decimals are

0.8997 and 0.9015

Now convert to *z-scores*

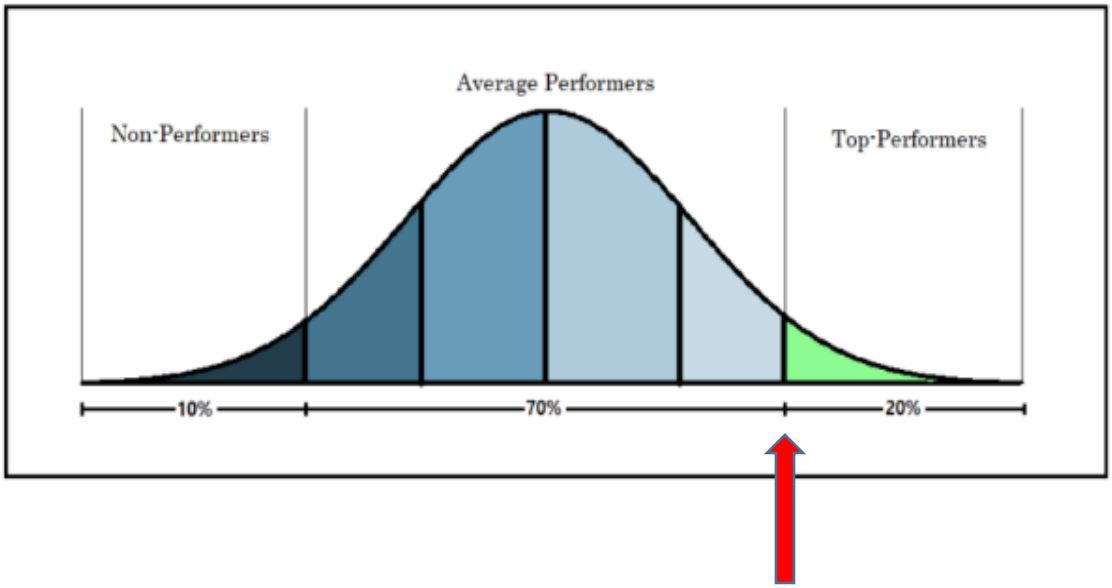
1.28 *and* 1.29

the 90th percentile

same as a z-score of approx..

$z = \mathbf{1.285}$

21) a *z-score* that corresponds to the top 20 percent



What percentile does this position correspond to?

This is the 80th percentile, or 0.8000

Find this decimal on form,

Closest decimals are

0.7995 and 0.8023

Now convert to *z-scores*

0.840 *and* 0.850

Last, Describe in context

The 80th percentile, which separates the top 20 percent,

is the same as a z-score of approx. ***z* = 0.845**

22) $-2\sqrt{15}(4-3\sqrt{6})$

A) $5\sqrt{5}-25\sqrt{3}$

B) $8\sqrt{2}$

*C) $-8\sqrt{15}+18\sqrt{10}$

D) $4\sqrt{2}+5$

E) $-3\sqrt{30}+3$

Find the 5 Number summary & interquartile range for each data set.

23) Age at First Job

15	19	15	17	16	12	17
18	18	14	17	18	13	12
13	17					
4						

24) Annual Household Income

12,650	13,050	19,950	41,100
7,000	11,100	23,050	18,300
34,950	14,800	12,500	10,400
31,400	18,650	8,650	18,000

Five number summary:

Min	Q_1	Median	Q_3	Max
12	13.5	16.5	17.5	19

$IQR = 4.0$

Min	Q_1	Median	Q_3	Max
7000	11,800	18,000	21,500	41,100

$IQR = 10{,}300$

25) What is the unit of analysis in statistics? Give an example that was provided within the textbook, Naked Statistics

Between pages 39 to 42 this concept is described and examples provided.

Unit of analysis could be different "units" or measures from the same data.