Name _____   Date _____

Box & Whisker Worksheet 3

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

Test Scores (as %) for 6th Period

```
 ├───────────────────────┤░░░░░░░░│░░░░├────┤
 38                      72      88  96  102
```

_102_   1. What was the high score on the test?

_75%_   2. What percent of the class scored above a 72?

_88_   3. What was the median score on the test?

_25%_   4. What percent of the class scored between 88 & 96?

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

_____

_____

For questions 7 – 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

middle 50%

```
 ├────┤░░░░│░░░░├──────────────────────────┤
 0   20   48 60                           190
```
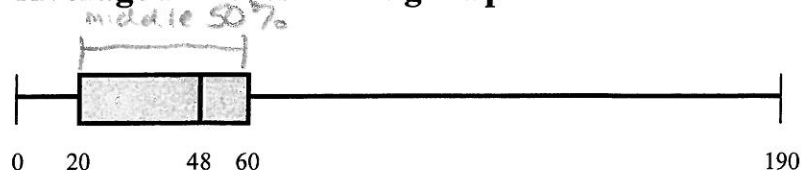
_25%_   7. What percent of the sophomores spend more than 60 minutes on homework per night?

_40_   8. What is the range of times that the middle 50% of the sophomores spend on homework per night?

Cannot be determined   9. How many sophomores do not do homework? (at least 1)

_25%_   10. What percent of the sophomores spend less than 20 minutes per night on homework?

For questions 12 – 23, 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

Homework Time

0   20   48   60   190

TV Time

0   15   60   110   225
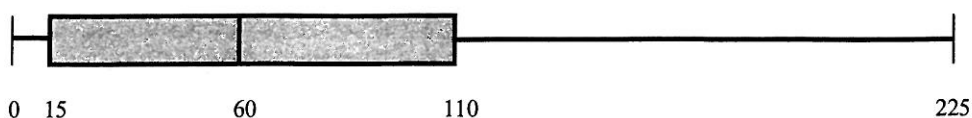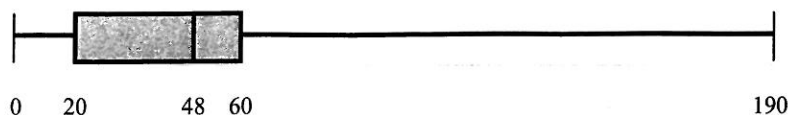
_75%_   12. What percent of the sophomores watch TV for at least 15 minutes per night?

_110_   13. What is the 3rd quartile for the TV time data?

14. 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.

_____

_____

_____

Figure Skating Scores

0   1   2   3   4   5   6   7   8   9   10
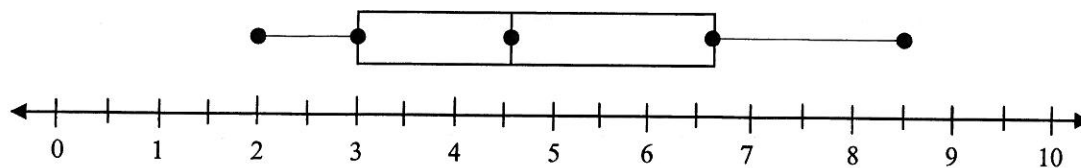
15) Use the box and whisker plot above to answer the following questions:

a) What is the lower quartile? _____3_____

b) What fraction of scores exceeded 4.5? _____$\frac{1}{2}$_____

c) What percent of scores were between 3 and 8.5? _____75%_____
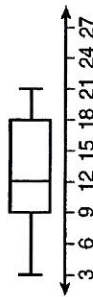
Name: _____

Date: _____

Mathematics Grade 7

Data Analysis Multiple Choice

Circle the letter of the best choice.

1. Which of the following data sets could be represented by the following box-and-whisker plot?
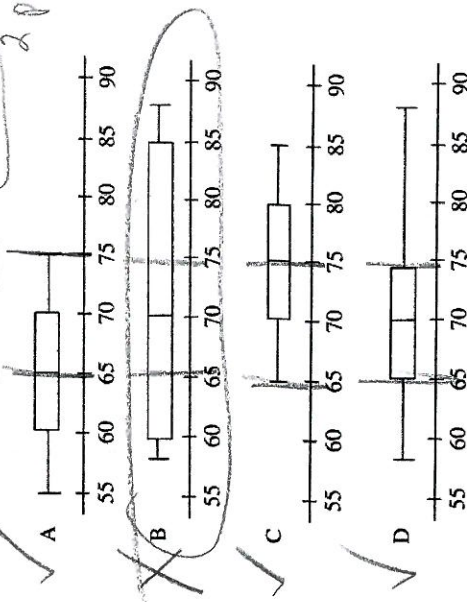


```
3  6  9  12 15 18 21 24 27
```

a) 3, 10, 11, 13, 21

b) 3, 9, 10, 12, 16, 18, 21

c) 3, 6, 9, 12, 15, 18, 21

d) 3, 9, 10, 11, 13, 15, 18, 21

2. Using the box-and-whisker plot from the previous question, what does the number 9 represent?

a) lower extreme

b) upper quartile

c) lower quartile

d) upper extreme

3. Which of the following box-and-whisker plots does NOT show 50% of the data between 65 and 75?

2 pieces

A

B

C

D

Use the following box-and-whisker plot to answer questions 4-6.

Text Messages Sent in One Day


```
0  2  4  6  8  10 12 14 16 18 20 22
```
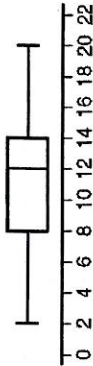
4. Between what two numbers does half the data lie?

a) 2 and 12

b) 14 and 20

c) 8 and 12

d) 2 and 14

5. What is the minimum number of text messages sent?

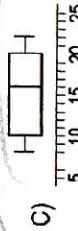a) zero
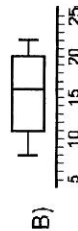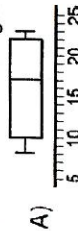
b) 2

c) cannot tell from this data display

d) 12

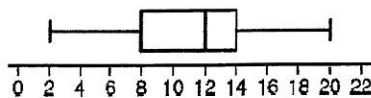6. What is the range of text messages sent in one day?

a) 14

b) 20

c) 18

d) 22

7. Given the following data:

10, 8, 9, 16, 19, 15, 20, 16, 21, 22, 19

Which of the following is the box-and-whisker graph for this data?

A)

B)

C)

D)

The number of text messages 10 different students sent in 1 day is shown in the box-and-whisker plot below.

8. What is the minimum number of text messages sent according to the plot shown?

A) 0   B) 2   C) 20   D) 8

9. What number is at the median according to the plot shown?

A) 12   B) 8   C) 14   D) 10

10. According to the plot shown, between what two numbers does half of the data lie?

A) 10 and 12   B) 8 and 12   C) 8 and 14   D) 2 and 20

11. According to the plot shown, how many text messages are at the 75th percentile (upper quartile)?

A) 15   B) 12   C) 13.5   D) 14

Figure Skating Scores
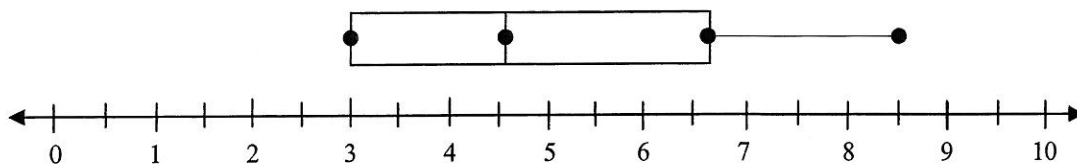
12) Tell two things about what it means that there is no whisker on the above box-and-whisker plot:
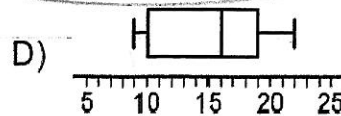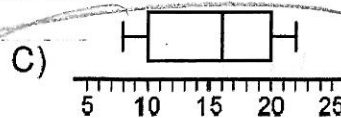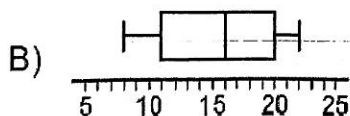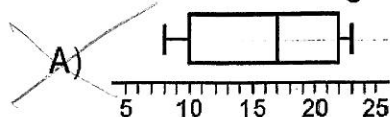
a)

b)

13) Given the following data:

8, 9, 10, 15, 16, 16, 19, 19, 20, 21, 22

Which of the following is the box-and-whisker graph for this data?

A)

C)

B)

D)

Name _____   Date _____

1. Mr. Axmann wants to find out which lunch item the students at Heritage like best in the cafeteria. He interviews students on Team 73 and Team 81.

   Population: *all students at HMS*   Sample: *Students on Team 73 & Team 81*

   Is the sampling method random? Why or why not?
   No - it's not fair to the other teams!

2. A scientist is studying the mating habits of dolphins at SeaWorld.

   Population: *all dolphins*   Sample: *dolphins at Sea World*

3. The manager of Dunkin Donuts wants to find out how customers feel about pumpkin flavored muffins. He surveys the customers who come in on the weekend.

   Is this sampling method random? Why or why not?
   No not fair to customers during the week.

4. Mr. Rubinetti wants to find out how much time students at Heritage spend playing video games.

   Population: *all students at HMS*   Sample: *students he surveys*

5. The manager at Olive Garden wants to know if she should add items to the all-you-can-eat salad. She puts all customer names on index cards, then puts them in a hat and pulls 100 customer cards.

   Is this sampling method random? Why or why not?
   Yes b/c it's fair to all customers!

6. Name two populations you might want to study and samples from those populations.

   a) population: _____   sample: _____

   b) population : _____   sample: _____

7. Describe a random sampling method you could use to get information about student allergies.

1) Using the data below, complete the frequency table.

DATA: 30, 32, 11, 14, 40, 37, 16, 26, 12, 33, 13, 19, 38, 12, 28, 15, 39, 11, 37, 17, 27, 14, 36

Number		Frequency
11-15		8
16-20		3
21-25		0
26-30		4
31-35		2
36-40		6

2) The test scores for 10 students in Ms. Sampson's homeroom were 61, 67, 81, 83, 87, 88, 89, 90, 98, and 100. Which frequency table is accurate for this set of data?

A)

Interval	Frequency
61-70	2
71-80	2
81-90	8
91-100	10

B)

Interval	Frequency
61-70	2
71-80	0
81-90	6
91-100	2

C)

Interval	Frequency
61-70	2
71-80	2
81-90	7
91-100	10

D)

Interval	Frequency
61-70	2
71-80	0
81-90	8
91-100	10

3) The graph below shows the distribution of scores of 30 students on a mathematics test.

Distribution of Math Test Scores

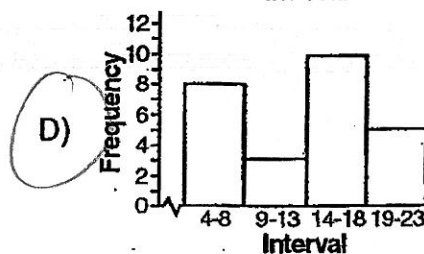Number of Students vs Test Scores (41-50, 51-60, 61-70, 71-80, 81-90, 91-100)
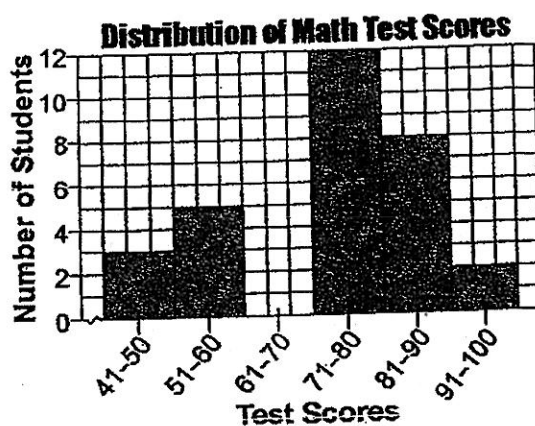
Complete the frequency table below using the data in the frequency histogram shown.

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

5)   Which one of the following histograms represents the data in the table below?

| Interval	Frequency
4-8	8
9-13	3
14-18	10
19-23	5

A)

C)

B)

D)
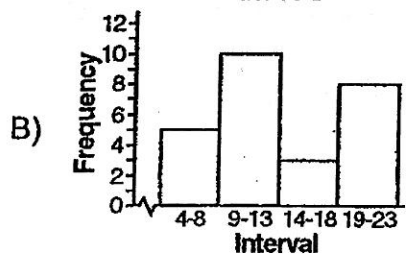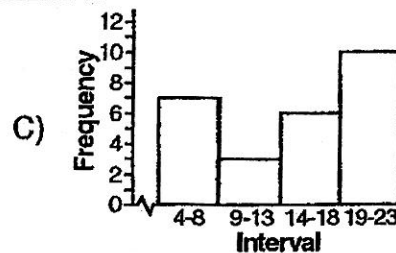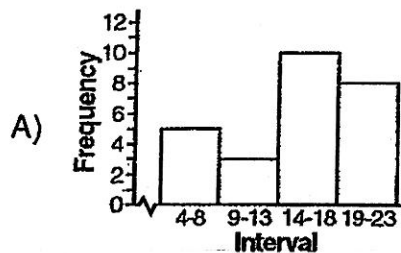
6)   The following data consists of the weights, in pounds, of 24 high school students: 195, 206, 100, 98, 150, 210, 195, 106, 195, 108, 180, 212, 104, 195, 100, 216, 99, 206, 116, 142, 100, 135, 98, 160.

Using this data, complete the accompanying cumulative frequency table and construct a frequency histogram on the grid below.

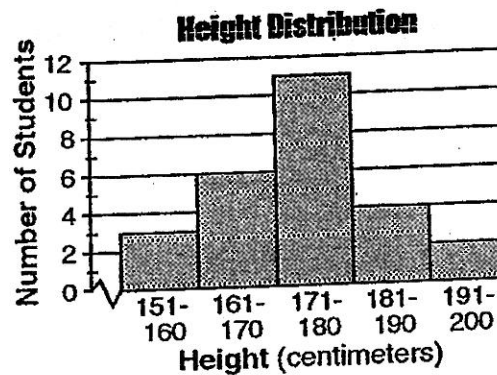| Interval	Frequency	Cumulative Frequency
51–100	6	6
101–150	7	13
151–200	6	19
201–250	5	24

High School Students' Weight

frequency

weight (pounds)
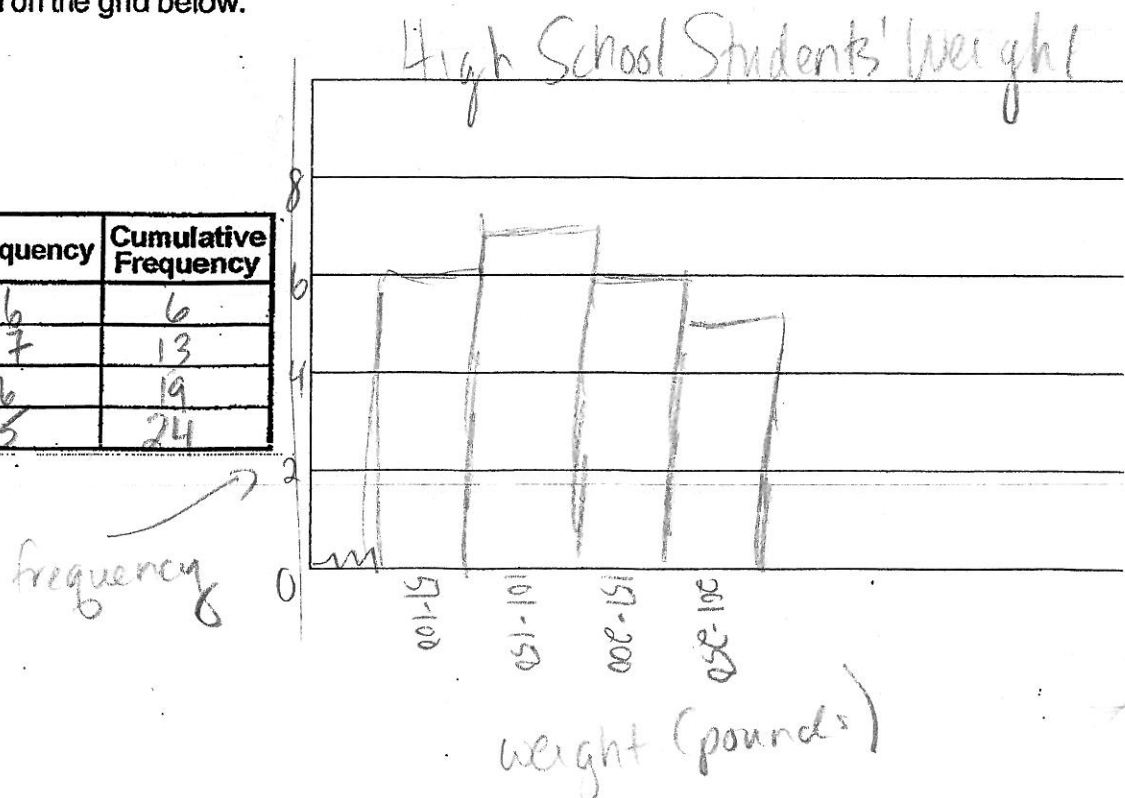
16) The accompanying histogram shows the heights of the students in Kyra's health class.
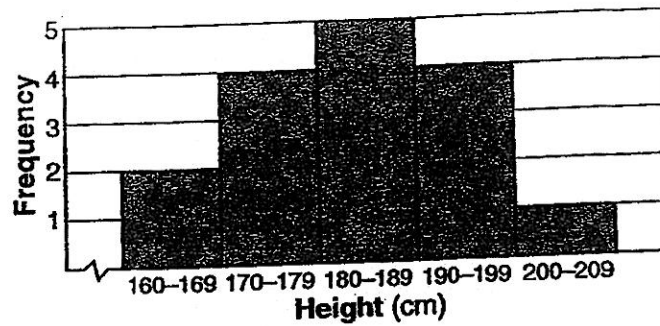
What is the total number of students in the class?

A) 15   B) 209   C) 16   D) 5

17) The accompanying histogram shows the height distribution for students in a high school mathematics class.

What is the total number of students in the class?

A) 28   B) 26   C) 49   D) 11

18) Using the cumulative frequency table below, how many students received a test score between a 70-79?

Scores on a French Test

Interval	Frequency
90-99	30
80-89	24
70-79	12
60-69	12
50-59	2

A) 0   B) 80   C) 12   D) 26

Questions 19 through 21 refer to the following:

The test scores for 20 students in a Spanish class are shown in the frequency table below.

| Interval	Frequency
90–99	4
80–89	3
70–79	8
60–69	4
50–59	1

19) According to the information shown, how many students received a score greater than a 69?

15

20) The median lies in which interval of the frequency table shown?

70-79

25) The Statistical Data Bureau published an analysis of incomes and expenditures of 100 average families throughout the United States. The circle graph below represents the Rosen family's monthly budget.

Rosen Family Budget

Other 30%

Food 30%

Housing 40%
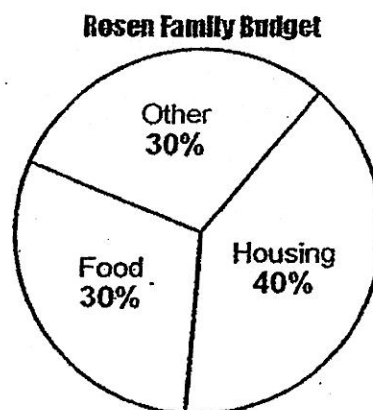
If their total monthly income is $1,820, how much money do they spend each month on food?

A) $546   B) $728   C) $606   D) $182