# Week 21 Pre-Algebra Assignment:

Day 1: pp. 395-396 #1-22, 27-43
Day 2: pp. 402-403 #11-20, 22-28 even, 30-34
Day 3: pp. 406-409 #2-10 even, 12-16, 18-30 even
Day 4: worksheet
Day 5: worksheet

## Notes on Assignment:

### Pages 395-396 (#1-22, 27-43)

**Work to show:**

#1-14:  Answers only

# 15-22: You can use calculators on these problems, but write down the numbers that you are calculating.

#31-34:  Write the equation and solve it.

General notes for this section:
- **Mean** = Average (sum of data divided by the number of the data)
- **Median** = Middle (If there are an even number of data, average the two middle numbers)
- **Mode** = Most (You may more than one mode, or no mode if no number appears more than once.)
- **Range** = Difference between the largest and smallest numbers

31:  We know that $\frac{24+29+x}{3} = 26$.  Multiply both sides by 3 and then solve the equation.
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### Pages 402-403 (#11-20, 22-28 even, 30-34)

**Work to show:**

#11-14:  You can use calculators on these problems, but write down the numbers that you are calculating.

#15: Box-and-Whisker diagram

#16-19:  You can use calculators on these problems, but write down the numbers that you are calculating.

#20: Box-and-Whisker diagram

#22-28:  Stem-and-leaf diagrams

#30-32:  Scatterplots

#33-34:  Answers only

<u>General Notes for this section</u> – Students received a handout in class with examples for all of the different types of diagrams and plots.  Please refer to the handout for these problems.

#11:  To find the middle quartile, find the median of the list of numbers.  In this case, since there are an even number of numbers, that means finding the average of the middle 2 numbers, 89 and 98.

#12:  Find the median of the bottom half of the numbers.  Since there were an even number of numbers in the list, include the 89 in the bottom half.  That means you will have to find the average of the middle two numbers in the lower list since there are 4 numbers in your list.

#13:  Find the median for the top half of the numbers.  As was the case for the lower quartile, you should include the 98 in the top half.  Find the average of the middle tow numbers of the 4 numbers in the top half.

#14:  The interquartile range is the difference between the upper and lower quartiles.  Find the difference between the answers you got in numbers 12 and 13 above.

#15:  Draw a number line that goes from 60 to 105. Put tick marks every 5 units.  Put points on your number line for the end points and the answers you got for #11, 12, and 13.  Make a box from the lower to upper quartiles and a hash mark at the median. (See page 398 for an example.)

#16-20:  Do these the same way as above, except you have an odd number of numbers, which means you will have a single number for the median instead of an average.  It also means you do NOT include the median in either the top half or bottom half of your numbers.

#22:  Write the numbers used as tens vertically. Draw a vertical line to the right of your list and write all of the ones digits next to the corresponding tens digit.  (See page 399 for an example.)

#26:  Do this the same as the other stem-and-leaf diagrams but let the vertical line be between the ones and the tenths.

#28:  The vertical line should be between the tens and ones.

#30:  Make the horizontal axis represent the mileage and the vertical axis represent the value.  Plot all points.  Label your axes and the graph.

#31:  Put Algebra 1 on the horizontal axis and Geometry on the vertical axis.  Plot all
        points.  Label your axes and the graph.

 #32-33:  When your data involves a relationship between 2 variable, we graph the ordered
        pairs to get an idea of the relationship.  We can even come up with an equation for a
        line or curve that best fits the data, allowing us to make predictions.

        Notice that as the amount of TV increases in the example above, the GPA
        decreases.  That means there is a negative correlation.  We often draw a line that
        fits the data as well as possible.  See the graph below.  That line has a negative
        slope, so we have a negative correlation.

        <u>Pages 406-409</u>  (#2-10 even, 12-16, 18-30 even)

**Work to show:**
        #2-4:  Distribution table
        #6-10:  4 answers (You can use a calculator for these problems)
        #12-16: Answers only
        #18-22:  Interval frequency table
        #24-26:  4 answers (You can use a calculator for these problems)
        #28-30:  Histograms

<u>General Notes for this section</u> – Students received a handout in class with examples for all
                                of the different types of tables and graphs.  Please refer to
                                the handout for these problems.

#2-4:  Your distribution table should include the following columns:
        1. Data (each of the numbers in your list)
        2. Tally (tally mark for each time you see that number)
        3. Frequency (a number to represent the number of tally marks in the tally
            column)
        4. Product (the number in the data column times the number in the frequency
            column)
        You also need to include a bottom row that lists the totals.

#6-10:  <u>Range</u>:  Subtract the bottom number from the top number in the data column.
        <u>Mean</u> = The total of the product column ÷ the total of the frequency column.
        <u>Median</u> = the data value that is the middle value of the list
        <u>Mode</u> = the data value that has the greatest number of tallies

#18-22:  Your interval frequency table should include the following columns:
        1. Intervals

2. The midpoint of each interval (subtract the numbers on the ends of the interval)
3. Frequency (the number of numbers in the given range)
4. Product (the midpoint times the frequency)
You also need to include a bottom row that lists the totals.

To calculate the mean, divide the sum of the products by the sum of the frequencies.

#24-26: <u>Range</u>: Subtract the smallest value of the lowest interval from the largest value of the highest interval bottom number from the top number in the data column.
<u>Mean</u> = You will need to calculate the midpoint of each row and then the product of that midpoint and the frequency. Then take the sum of the products and divide it by the sum of the frequencies.
<u>Median</u> = the interval that includes the middle value of the list
<u>Mode</u> = the interval that has the highest frequency

#28-30: Make a histogram, putting the intervals along the horizontal axis. The bars should touch each other. (There should not be space between the bars.)

## Worksheet

**All problems:** You can use a calculator for this worksheet.

#1: If the mean for the boys is 80%, it's like all 14 of them got an 80%. And it if the mean for the girls was 90% it was like all 6 of them got a 90%. Use those 20 scores and find the mean for the class.

#2: There are 12 possible sums. Find them all and then find the median.

#3: This is just like #31 on day 1. (See above) What makes it a challenge is that you are dealing with fractions. Do the math carefully!

#4: Figure out from the table the total number of students represented. From that, decide which student (or 2 students if the number of students is even). Find the median score based on the middle student(s)

#5: If you have 2 different positive whole numbers whose mean is 5, then the numbers must add to give you 10. There are only 4 possible pairs of numbers: 1 and 9, 2 and 8, 3 and 7, and 4 and 6. Check the mean of 1/a and 1/b using the 4 pairs given and answer the questions. (To get you started, find the mean of 1/9 and 1/1 by adding them and dividing by 2. You will need a common denominator to add them, and then instead of dividing by 2, multiply by ½ instead.

<u>Worksheet</u>

**All problems:**  You can use a calculator for this worksheet.

<u>General Notes</u>: This is a worksheet that reviews all of the concepts studied so far in this chapter.  If you need help, refer back to the general instructions given in the assignment notes over the past couple of weeks, or look in your textbook.