MSP PRACTICE

Name: _____

1) A bakery carries both 9-inch pies and 4-inch mini pies. The shelves of a display case in the bakery are 6 feet long. The equation represents the possible combination of pies that fit along the length of each shelf.

$$9x + 4y = 72$$

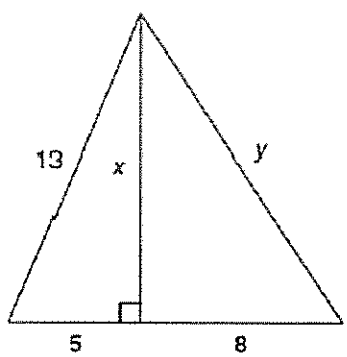
- Determine the value of the y-intercept in this equation.

2) Ana is making bracelets and necklaces for her classmates. It takes her 20 minutes to make one bracelet and 30 minutes to make one necklace. She has 5 hours to work on making bracelets and necklaces.

The function $\frac{1}{3}x + \frac{1}{2}y = 5$ represents the number of bracelets (x) and necklaces (y) Ana can make in 5 hours.

- Determine the y-intercept of the graph of the function.
- Explain what the y-intercept means in terms of both the number of bracelets and the number of necklaces Ana makes in 5 hours.

3) A triangle is shown with measurements in feet.



Determine the value of y to the nearest tenth of a foot.

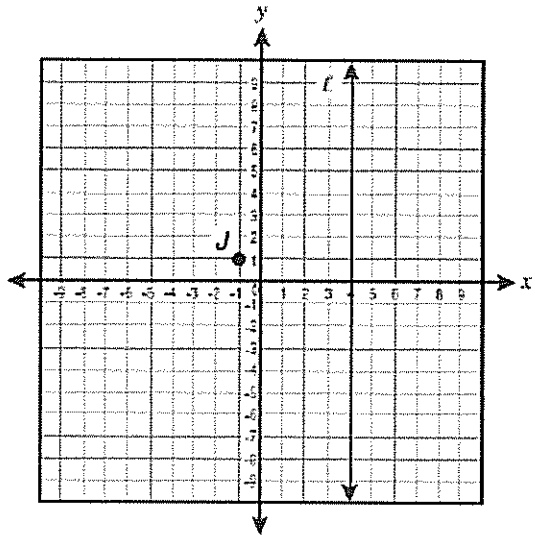
4) Determine the value of x that makes the equation true.

$$6 - (2x - 4) + x = 3(x - 4)$$

5) Determine the value of y that makes the equation true.

$$3y = \frac{y - 15}{2}$$

6) Point J is located at $(-1, 1)$. Line ℓ represents the equation $x = 4$.



Determine the integer coordinates of a possible point on line ℓ that is approximately 8.6 units from point J.

7) Last year Wings Airlines had 8.597×10^7 passengers, and Sunshine Air had 6.48×10^6 passengers.

- Determine how many more passengers flew on Wings Airlines last year than on Sunshine Air.
- Write your answer in scientific notation.

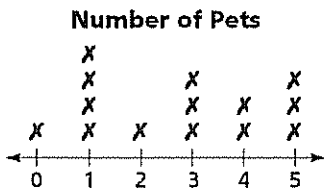
8) The letter "e" is the most commonly used letter in the English language. In a list of 12 words, the letter "e" appears in 8 of the words. Two different words from the list are randomly chosen.

What is the probability that the letter "e" appears in both words?

9) Employees at a local grocery store drive to work every day. There are 5 employees but only 3 spots in the parking lot for employees. Each day, 2 employees park on the street. Each employee has the same chance of parking in one of the spots in the parking lot.

Determine the probability that the same employee will park in the parking lot two days in a row.

4. Below is a copy of the distribution of the number of pets for Marie and her friends. The location of the mean is at 2.71 pets and the median is at 3 pets.



a. What happens to the mean and the median if a friend with 3 pets is removed and her data is replaced with data from three new friends, each of whom has 1 pet? Why do you think this happens?

b. What happens to the mean and the median in the original distribution if you remove a friend with 1 pet and replace her with a friend who has 4 pets? Why do you think this happens?

5. Four friends wanted to share their costs for lunch equally among themselves. Their meals cost \$4.50, \$3.50, \$4.20, \$3.50. Mandy said that because two of the meals cost the same you needed to only divide the total cost of the meals by 3. Enrico disagreed and said that no matter whether the meals cost the same amount, you would still divide them equally among the 4 friends. Do you agree with Mandy or Enrico? Explain your thinking.

6. The following data are the number of hours of homework done by several students on a Monday night: 0.5, 0.5, 1, 1, 1, 1, 2, 3. If you replaced data from a student who did 0.5 hour of homework with one who did 2 hours of homework:

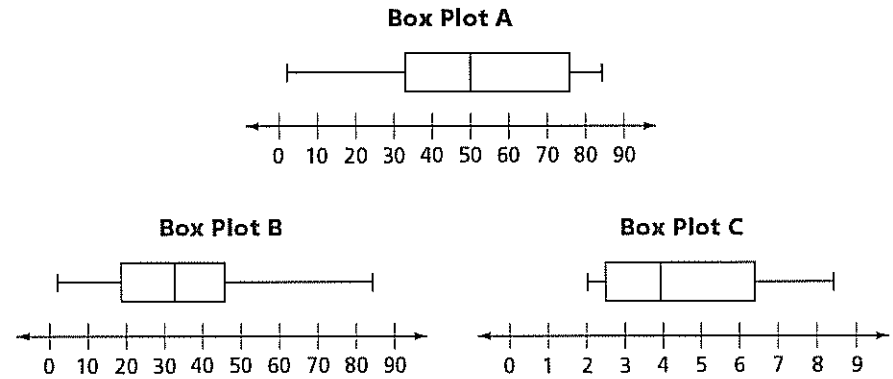
a. Does the mean change? If so, how does it change and why?

b. Does the median change?

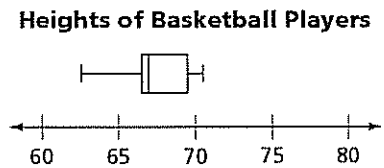
~~b. Do you think the suspicious dice are fair? Explain your answer.~~

9. Which box plot below—A, B, or C—matches the stem plot shown? Explain what you looked for to make the match.

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



10. **a.** This box plot shows the heights in inches of girls on a freshmen basketball team. What would you say is a typical height of a team member? Give evidence to support your answer.



b. Listed below are the heights in inches of boys on an 8th grade basketball team. Make a box plot of these data using the same scale as used in part a.

60 60 66 66 66 67 68 69 69 69 69 70 70 71 71 71

c. Which statement do you agree with? Use the box plots to help you decide.

Statement 1: The players on the boys' team are taller than those on the girls' team.

Statement 2: The players on the girls' team are taller than those on the boys' team.