

2. (a) (11 points) Draw a relative frequency polygon (line graph) which represents the data in Question 1.

(b) What is the area under the line approximately equal to? To your students, how would you explain what this number represents?

3. (a) (12 points) State the definition of a solution set.

(b) Give an example of an equation whose solution set has only one element. Describe the solution set for your equation.

(c) Give an example of an equation whose solution set has an infinite number of elements. Describe the solution set for your equation.

4. (a) (9 points) Give an example of a function machine. State the function you use.

(b) Explain why this description would help your students understand the definition of a function.

5. (9 points) A triangle is formed from the points $(-1,3)$, $(6,-2)$, and $(5,4)$. Is it isosceles?
(Are two sides the same length?)

6. (8 points) Suppose you are given the following table,

Favorite Colors for your 3rd Grade Class

Red	3
Orange	1
Yellow	4
Green	3
Blue	7
Purple	2

- (a) Choose a graphical representation and use it to represent the data in the table. Be careful, not all graphical representations work with this data.

- (b) Explain why the representation you chose is appropriate for this data.

7. (10 points) Suppose your population, consisting of the average temperature in August of all major cities in the United States, is normally distributed. Assume the mean is 75 degrees and the standard deviation is 5.

(a) In August, what percentage of cities in the U.S. have an average temperature between 70 and 80 degrees?

(b) The average temperatures for 99.7% of the cities lies between what limits?

(c) Would you rather live in a city whose z-score is 1.5 or whose z-score is -.9? Explain.

8. (10 points) Find k so the line $5y - kx = 2$ is parallel to the line $2y - 7x + 3 = 0$.

9. (12 points) For the sample set $\{11, 14, 18, 9, 13\}$

(a) Compute the mean, \bar{x} .

(b) Compute the standard deviation, s . You may leave your answer as a radical.

(c) Suppose the standard deviation for the entire population is $\sigma = 8$. How does the data from the population compare with the sample set?

10. (6 points) After a class discussion on generating random sequences of numbers, your student tells you that he can generate a random sequence from the numbers

$$\{2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$$

by repeatedly tossing two dice. How would you respond?