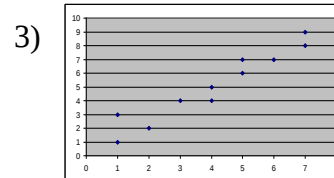
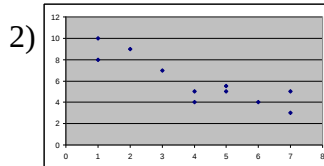
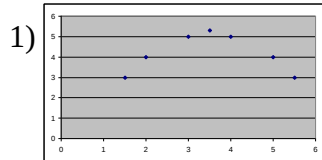


**Prob/Stat/Discrete
Unit 7 Practice Test**

Name _____

For # 1 – 3, describe the correlation in words.



For # 4 – 6, choose the best answer.

4) The best estimate of the correlation coefficient, r , for the graph from #1 is
a) 0.95 b) 0.02 c) -1 d) 1

5) The best estimate of the correlation coefficient, r , for the graph from #2 is
a) -0.86 b) -1 c) 0.86 d) 1

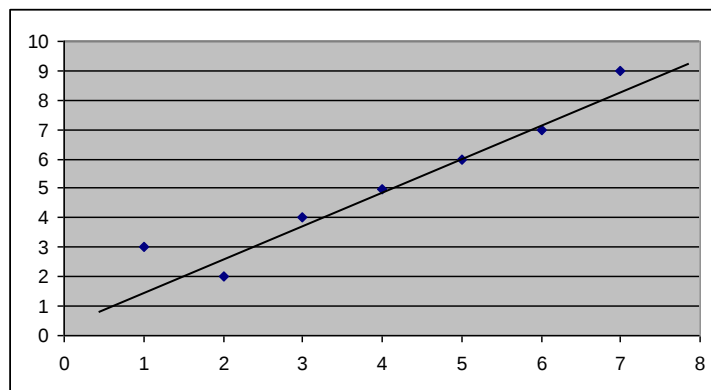
6) The best estimate of the correlation coefficient, r , for the graph from #3 is
a) -0.86 b) -1 c) 0.86 d) 1

For #7 – 9, use the scatter plot shown.

7) Estimate the residual for $x = 7$.

8) Estimate the residual for $x = 5$.

9) Is the residual for $x = 2$ a positive or a negative value? Explain your reasoning.



For # 10 – 15, use the data shown about the ages (in years) of seven children and their heights (in inches).

Ages, x	3	4	4	5	6	6	7
Heights, y	32	38	37	40	43	46	48

10) Find the correlation coefficient, r .

11) Find the equation of the regression line.

12) Predict the height of a 2-year old.

13) At what age would you expect a child to have a height of 60 inches?

14) Find the residual for $x = 7$.

15) What percentage of the data can be explained by the regression line?

16) The hours (x) spent online in one weekend by 12 students has a mean of 4.5 hours with a standard deviation of 2.84. The test scores (y) of those same students have a mean of 75.7 with a standard deviation of 13.92. The correlation coefficient between the hours and the test scores is -0.83.

- a) What is the explanatory variable?
- b) What is the response variable?
- c) Find the equation of the linear regression line.

17) Determine the sampling error if the grade point averages for 10 randomly selected students from a class of 135 students has a mean of 2.5. Assume the grade point average of the 135 students has a mean of $\mu = 3.9$.

18) A random sample of 140 students has a test score average with a standard deviation of 12.7. Find the margin of error if $c = 0.95$.

19) Find the value of E , the margin of error, for $c = 0.90$, $n = 10$ and $s = 3.7$.

- a) 1.62 b) 2.12
- c) 2.14 d) 0.68

20) In a random sample of 50 computers, the mean repair cost was \$135 with a standard deviation of \$45. Construct a 90% confidence interval for the population mean.

21) The number of wins in a season for 31 randomly selected professional soccer teams are listed below. Construct a 90% confidence interval for the true mean number of wins in a season.

9	11	12	8	10	11	7	2
13	10	6	2	8	9	8	8
12	10	7	6	12	6	4	3
12	10	9	7	4	7	9	

22) A nurse at a local hospital is interested in estimating the birth weight of infants. How large a sample must she select if she desires to be 99% confident that the true mean is within 2 ounces of the sample mean? The standard deviation of the birth weights is known to be 7 ounces.

23) A coffee machine is supposed to dispense 12 ounces of coffee in each cup. An inspector selects a random sample of 40 cups of coffee and finds they have an average amount of 12.2 ounces with a standard deviation of 0.3 ounce. Use a 99% confidence interval to test whether the machine is dispensing acceptable amounts of coffee.

24) A random sample of 8 ice cream sales at a beach hut showed the following purchases for a day. Assume the purchases are normally distributed.

\$3.60 \$4.50 \$2.80 \$6.30 \$2.60 \$5.20 \$4.25 \$3.00

Find the 95% confidence interval for the true mean.

25) A factory produces bolts for automobiles, and one specific bolt is supposed to be a length of 3.0 inches. A random sample of 50 bolts produced in one day shows a sample mean of 3.1 inches with a standard deviation of 0.2 inches. Use a 90% confidence interval to determine whether or not the factory is producing bolts at an acceptable length.