

If you have access to a computer, laptop, or cellphone and the internet, you will first want to go to: <https://bit.ly/3blr8CH> for FREE classes on all AP exam preparations.

OR

You are welcome to use the activities below

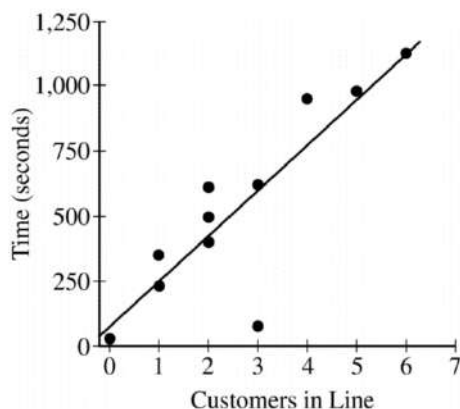
Days 1-4

AP Stats

Day 1-10

Directions: Show all your work. Indicate clearly the methods you use, because you will be scored on the correctness of your methods as well as on the accuracy and completeness of your results and explanations.

- The manager of a grocery store selected a random sample of 11 customers to investigate the relationship between the number of customers in a checkout line and the time to finish checkout. As soon as the selected customer entered the end of a checkout line, data were collected on the number of customers in line who were in front of the selected customer and the time, in seconds, until the selected customer was finished with the checkout. The data are shown in the follow scatterplot along with the corresponding least-squares regression line and



computer output.

- Identify and interpret in context the estimate of the intercept for the least-squares regression line.
- Identify and interpret in context the coefficient of determination, r^2 .
- One of the data points was determined to be an outlier. Circle the point on the scatterplot and explain why the point is considered an outlier.

Predictor	Coef	SE Coef	T	P
Constant	72.95	110.36	0.66	0.525
Customers in line	174.40	35.06	4.97	0.001
S = 200.01		R-Sq = 73.33%		R-Sq (adj) = 70.37%

2. A limnologist takes samples from a creek on several days and counts the numbers of flatworms in each sample. The limnologist wants to look at the relationship between the temperature of the creek and the number of flatworms in the sample. The data show a linear pattern with the summary statistics shown below:

	mean	standard deviation
x = creek temperature ($^{\circ}\text{C}$)	$\bar{x}=10.2$	$s_x = 2.8$
y = number of flatworms	$\bar{y}=37.6$	$s_y = 30.8$
		$r = -0.98$

Find the equation of the least-squares regression line for predicting the number of flatworms from the creek temperature.

Round your entries to the nearest hundredth.

$$\hat{y} = \boxed{} + \boxed{}x$$

Days 5-10

3. Plamen is a social media manager for a large company. He takes a random sample of their posts to see if there is a relationship between the time of each post and the number of times the post gets shared. Here are the outcomes and partial results of a chi-square test (expected counts appear below observed counts):

Chi-square test: Time of post vs. number of shares

	0-50	51-100	100+	Total
Morning	203	77	50	330
	219	72	39	
Afternoon	117	36	12	165
	109.5	36	19.5	
Evening	45	7	3	55
	36.5	12	6.5	
Total	365	120	65	550

They want to use these results to carry out a χ^2 test of independence. Assume that all conditions for inference were met.

What are the values of the test statistic and P-value for their test?

4. Liv collected information about the length and width of a random sample of 48 petals of iris flowers. Here are the results:

	Width is less than 2 cm	Width is more than 2 cm	Total
Length is less than 5.2 cm	14	3	17
Length is 5.2 cm to 5.7 cm	4	11	15
Length is more than 5.7 cm	7	9	16
Total	25	23	48

Liv wants to perform a χ^2 test of independence between petal length and width.

What is the expected count for the cell corresponding to petals whose length is more than 5.7 cm and whose width is more than 2 cm?

You may round your answer to the nearest hundredth.