

1. The mean life of a tire is 30,000 km. The standard deviation is 2000 km.

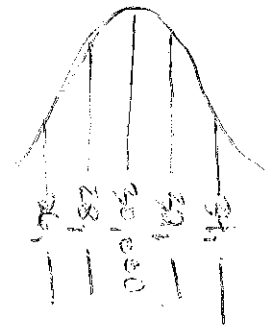
a) 68% of all tires will have a life between 28,000 km and 32,000 km.

b) 95% of all tires will have a life between 24,000 km and 36,000 km.

c) What percent of the tires will have a life that exceeds 26,000 km? .977 = 97.7%

d) If a company purchased 2000 tires, how many tires would you expect to last more than 28 000 km?

1,683 tires



2. The shelf life of a particular dairy product is normally distributed with a mean of 12 days and a standard deviation of 3 days.

a) About what percent of the products last between 9 and 15 days? 68%

b) About what percent of the products last between 12 and 15 days? 34%

c) About what percent of the products last 6 days or less? .0250 = 2.5%

d) About what percent of the products last 15 or more days? .16 = 16%

3. Use the data set below to answer questions 3a – 3d

Table 1

22	33	37	53	57	69	85	102	106	112
23	33	38	53	59	70	86	104	107	112
24	35	41	54	61	70	101	105	109	117
28	36	42	54	69	75	101	105	110	119
30	36	49	56	69	82	102	106	110	120

3a. What is the percentile of 86? $\frac{32}{50} = 64\text{th percentile}$

3b. What is the percentile of 61? $\frac{23}{50} = 46\text{th percentile}$

3c. Find the 2nd percentile $(.02)(50) = 1 \rightarrow 22$

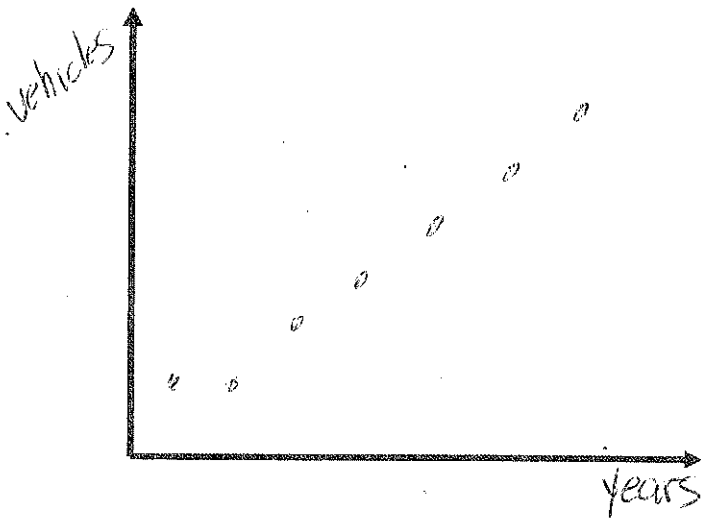
3d. Find the 55th percentile $(.55)(50) = 27.5$ round up to $28 \rightarrow 70$

$n=50$

The table shows the number y (in thousands) of alternative fueled vehicles in use in the United States x years after 1997

x	0	1	2	3	4	5	6	7
y	280	295	322	395	425	471	511	548

A. Create a scatter plot of the data, label the axis



Reference: *The Song of Insects* by Dr.G.W. Pierce, Harvard College Press

B. Describe the direction of the relationship of the scatter plot above?

B. positive

C. Find the value of the correlation coefficient (r) for data above.

C. $r = 0.99$

D. Describe the strength of the correlation (ie. Weak vs. Strong)

D. strong

E. What does this mean in the context of the situation?

the number of alternative fueled vehicles has increased since 1997

F. Find the equation of the least-squares regression line (LSRL). Round values to 3 decimal places.

$y = 40.869x + 262.833$

G. What is the slope of the LSRL? Interpret the slope in context.

Slope = 40,869. This means

H. What is the y-intercept of the LSRL? Interpret the y-intercept in context.

y-int = 2162,833. This means

I. Use your LSRL equation to predict the number of vehicles after 9 year

$$y = 40,869(9) + 2162,833$$

$$y = 630,651$$

approx 631 vehicles