

# Math 206 - Quiz 7

March 30, 2011

Name key

Score \_\_\_\_\_

Show all work to receive full credit. Supply explanations when necessary.

1. (2.5 points) The speeds of cars on a certain interstate highway are normally distributed with mean 68.75 mph and standard deviation 6.73 mph. About what percent of cars on the highway are driving above 75 mph or below 50 mph?

$$Z_{75} = \frac{75 - 68.75}{6.73} \approx 0.93$$

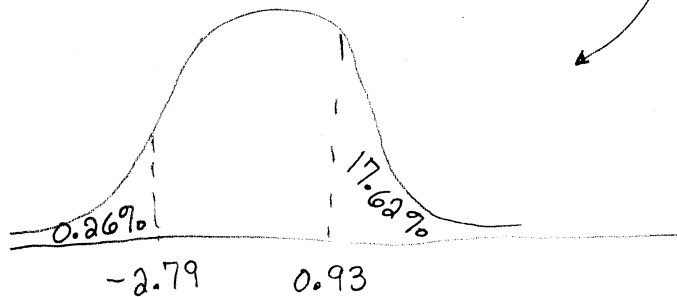
Look up 0.93  $\rightarrow$  0.3238

$$50\% - 32.38\% = 17.62\%$$

$$Z_{50} = \frac{50 - 68.75}{6.73} \approx -2.79$$

Look up 2.79  $\rightarrow$  0.4974

$$50\% - 49.74\% = 0.26\%$$



$$17.62\% + 0.26\%$$

$$= \boxed{17.88\%}$$

2. (2.5 points) A fully-charged battery on a new Amazon Kindle has a mean lifetime of 96 hrs with a standard deviation of 3.1 hrs. In a sample of 764 Kindles, about how many will have a battery life between 90 hrs and 100 hrs.

$$Z_{100} = \frac{100 - 96}{3.1} \approx 1.29$$

Look up 1.29  $\rightarrow$  0.4015

$$40.15\%$$

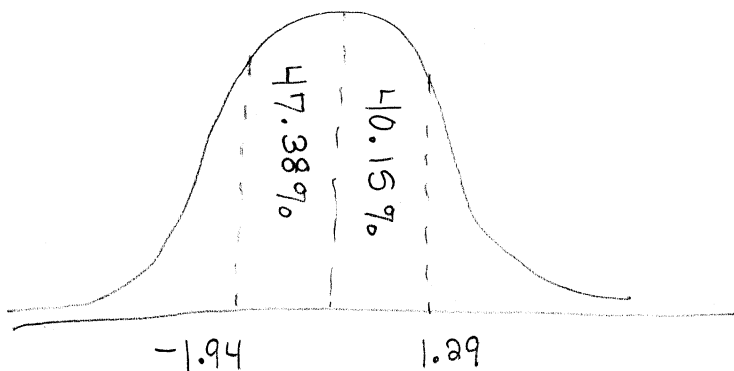
$$Z_{90} = \frac{90 - 96}{3.1} \approx -1.94$$

Look up -1.94  $\rightarrow$  0.4738

$$47.38\%$$

$$40.15\% + 47.38\%$$

$$= 87.53\%$$



$$87.53\% \text{ of } 764$$

$$\text{is about } \boxed{669}$$