

Name: _____

Date: 1/29/14 Bell: _____

AP Stats
Normal Distribution IC

The weekly income of a shift foreman in the glass industry is normally distributed with a mean of \$1000 and a standard deviation of \$100.

1. What is the likelihood of selecting a foreman whose weekly income is between \$1000 and \$1100?



$$z = \frac{1100 - 1000}{100} = 1 \quad .8413$$

$$z = \frac{1000 - 1000}{100} = 0 \quad -.5000$$

.3413

2. What is the probability of selecting a shift foreman in the glass industry whose income is between \$790 and \$1000?



$$z = \frac{1000 - 1000}{100} = 0 \quad .5000$$

$$z = \frac{790 - 1000}{100} = -2.1 \quad -.0179$$

.4821

3. What is the probability of selecting a shift foreman in the glass industry whose income is less than \$790?



$$z = \frac{790 - 1000}{100} = -2.1 \quad .0179$$

4. What is the probability of selecting a shift foreman in the glass industry whose income is between \$840 and \$1200?



$$z = \frac{1200 - 1000}{100} = 2 \quad .9772$$

$$z = \frac{840 - 1000}{100} = -1.6 \quad -.0548$$

.9224

5. What is the probability of selecting a shift foreman in the glass industry whose income is between \$1150 and \$1250?



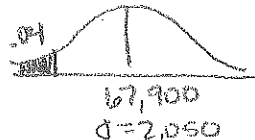
$$z = \frac{1250 - 1000}{100} = 2.5 \quad .9938$$

$$z = \frac{1150 - 1000}{100} = 1.5 \quad -.9332$$

.0606

Answer each question.

6. Layton Tire and Rubber Company wishes to set a minimum mileage guarantee on its new MX100 tire. Tests reveal the mean mileage is 67,900 with a standard deviation of 2,050 miles and that the distribution of miles follows the normal probability distribution. It wants to set the minimum guaranteed mile so that no more than 4% of the tires will have to be replaced. What minimum guaranteed mileage should Layton announce?



$$-1.75 = \frac{x - 67,900}{2,050}$$

64,312.5 miles

7. A job placement agency plans to give extra training to clients who score the top 2% of the people who take an aptitude test. The aptitude test has a mean score of 75 and a standard deviation of 5. What is the score the agency should use as the cutoff point?



$$2.05 = \frac{x - 75}{5}$$

85.25