**Statistical Reasoning Name:**

**WS 3.4 – Empirical Rule**

**For 1-7, represent each of the distributions on one of the normal distribution graphs found on the back of this page. For each, show three standard deviations to the left and three standard deviations to the right of the mean.**

 1. A normal distribution with a mean of 7 and a standard deviation of 2.

2. A normal distribution with a mean of 500 and a standard deviation of 100.

3. The amount of time a middle school student studies per night is normally distributed with a mean of 30 minutes and a standard deviation of 7 minutes.

4. The length of hair of a private in the army is normally distributed with a mean of 1 cm and a standard deviation of 0.3 cm.

5. The length of wear on Spinning Tires is normally distributed with a mean of 60,000 miles and a standard deviation of 5,000 miles. Shade the region under the curve that represents the fraction of tires that last between 50,000 miles and 70,000 miles. What fraction of tires does that represent?

6. The number of crackers in a box of Crackerbox Crackers is normally distributed with a mean of 75 and a standard deviation of 2. Shade the region under the curve that represents the probability that a box has between 73 and 77 crackers. What is that probability?

7. The length of time it takes to groom a dog at Shaggy’s Pet Shoppe is normally distributed with a mean of 45 minutes and a standard deviation of 10 minutes. Shade the region under the curve that represents the percent of dog grooming times between 55 and 65 minutes. What is that percent?

**For 8-11, use the following information. The braking distance for a Krazy-Car traveling at 50 mph is normally distributed with a mean of 50 ft. and a standard deviation of 5 ft.**

1. What is the likelihood a Krazy-Car will take more than 65 ft. to stop?
2. What is the probability a Krazy-Car will stop between 45 ft. and 55 ft.?
3. What percent of the time will a Krazy-Car traveling at 50 mph stop between 35 and 55 ft.?
4. What is the probability a Krazy-Car will require less than 50 ft. or more than 60 ft. to stop

 

 

 

 