

Instructions: Show all work. If you use your calculator, state which functions and syntax was used as work.

1. Suppose that the chance that a particular type of battery is charged is 95%. A flashlight needs two batteries to be properly charged in order to operate. If batteries are placed into 10 flashlights, what is the probability that all 10 will operate?

$$.95 \times .95 = .9025 = p$$

$$\binom{10}{10} (.9025)^{10} (.0975)^0 = .3584859224 \dots$$

about 35.8%

2. Consider a normal distribution of exam scores with a mean of 75 and a standard deviation of 8. Find the standard score for the exam score 95.

$$\mu = 75 \quad \sigma = 8$$

$$\frac{95-75}{8} = \frac{20}{8} = 2.5 = z$$

3. What is the percentile of the score 95 in problem #2?

99.38

4. Using the same distribution as in problem #2, what percent of the class can be expected to pass? (i.e. receive a score higher than 70.)

73.4%

5. What score in the same distribution is higher than 90% of all the scores in the class?

85.25