

Quiz 2 (Group) for Statistics 113
Statistics and Society - Fall 1999

Time to failure of brand X of light bulb in factory A follows a normal curve, with an average of 3250 hours and SD of 250 hours.

- [1] The time to failure of a light bulb one and a half SDs below the average time is (circle one) **2625** / **2750** / **2875** / **3000** / **3125** hours.
 - [1] A light bulb which has a time to failure of 450 hours more than the average is how many SD units above the average? _____.
 - [1] The percentage of light bulbs within 0.5 SD of the average is _____.
 - [1] The 65th percentile is _____.
 - [1] A time to failure of 3800 hours would be closest to (circle)
 - 97.2th percentile
 - 97.9th percentile
 - 98.3th percentile
 - 98.6th percentile
 - 99.5th percentile
 - [1] Five light bulbs are tested and found to have the following time to failures (in hours): 3598, 3668, 3625, 3667 and 3742. This data (circle one) **does** / **does not** indicate some bias in the test.

1. [1] **2875**
2. [1] 1.8
3. [1] 38%
4. [1] 3350; $100 - 65 = 35$, $35 \times 2 = 70$, $100 - 70 = 30$, which is 0.40 from normal tables, so $3250 + 250(0.40) = 3350$
5. [1] (d) 97.22; $3800 - 3250 = 550$, $\frac{550}{250} = 2.2$, which is 97.22% from normal tables, or $100 - 97.22 = 2.78$, and $\frac{2.78}{2} = 1.39$ or $100 - 1.39 = 97.22$
6. [1] **does** (*average* of times are above one SD above 3250)