**Assignment Task A: 99% Confidence Interval Using Sample Standard Deviation**

To construct the 99% confidence interval for the mean number of characters printed before failure, using the **sample standard deviation**, we proceed with the following steps:

1. **Sample Data**: 15 print-head durability values (in millions of characters) were given.
2. **Sample Mean (μ̂)**: 1.2387 million characters (approx)
3. **Sample Standard Deviation (s)**: 0.1932 million characters (approx)
4. **Confidence Level**: 99% → α = 0.01
5. **Degrees of Freedom (df)** = n - 1 = 14
6. **Critical Value (tα/2)**: t-value from t-distribution table for df = 14 and α/2 = 0.005 is approximately 2.977
7. **Margin of Error (ME)** = t \* (s / √n) = 2.977 \* (0.1932 / √15) ≈ 0.1485

**Confidence Interval (CI)** = (μ̂ - ME, μ̂ + ME) = (1.0902, 1.3871)

Hence, we are 99% confident that the true mean durability of the print-heads lies between **1.0902 and 1.3871 million characters**.

**Assignment Task B: 99% Confidence Interval Using Known Population Standard Deviation**

If the **population standard deviation** is known to be 0.2 million characters, we can use the **z-distribution**:

1. **Sample Mean (μ̂)**: 1.2387 million characters
2. **Population Standard Deviation (σ)**: 0.2 million characters
3. **Sample Size (n)** = 15
4. **Confidence Level**: 99% → α = 0.01
5. **Critical Value (zα/2)**: z-value for α/2 = 0.005 is approximately 2.576
6. **Margin of Error (ME)** = z \* (σ / √n) = 2.576 \* (0.2 / √15) ≈ 0.1330

**Confidence Interval (CI)** = (μ̂ - ME, μ̂ + ME) = (1.1057, 1.3717)

Therefore, with 99% confidence, the true mean durability lies between **1.1057 and 1.3717 million characters**.

Both intervals provide insight into the likely range of the true mean, but the interval using the sample standard deviation (Task A) is slightly wider due to added uncertainty.