Step 1: Set up hypothesis

- Null hypotheses (H_0): The average daily yield has not changed: $\mu = 880$ tons

- Alternative hypotheses (H_a): The average daily yield has changed: $\mu \neq 880$ tons

$H_a \neq H_0$

two-tailed test — $2 \cdot P(z > |z^*|)$

Step 2: Compute test statistic (t)

Sample mean ($\bar{x}$) = 871 tons

Hypothesized mean (μ_0) = 880 tons

Sample standard deviation (s) = 21 tons

Sample size (n) = 50 days

$$t = \frac{\bar{x} - \mu_0}{s/\sqrt{n}} = \frac{871 - 880}{21/\sqrt{50}}$$

$t = -3.03$

Step 3: Determine P-value:

Two-tailed test: $2 \cdot P(z > |t|)$

$2 \cdot P(z > |-3.03|)$

On TI-84:

1. 2nd → Vars
2. 2: normalcdf
3. Enter values:
   - Lower = abs(-3.03)
   - Upper = 99999
   - Mean = 0
   - Standard deviation = 1
4. Enter, result times 2

$P = 0.0025$

Step 4: Compare P-value with α:

$P = 0.0025$ vs $\alpha = 0.05$

Since $P < \alpha$, we reject the null hypotheses. There is evidence that suggests that the average daily yield has changed from 880 tons.