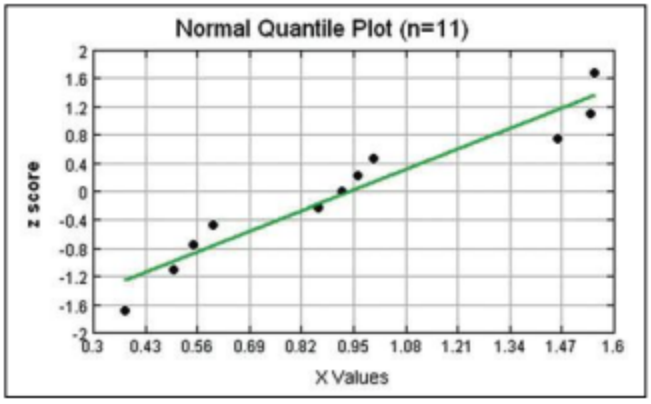
are reasonably close to a straight-line pattern and there is no other pattern that is not a straight line. We conclude that the sample data appear to be from a normally distributed population. The requirements are satisfied. ✔



Technology We could use technology to obtain the *P*-value. Shown here are the TI-83/84 Plus calculator results for this hypothesis test, and we can see that the *P*-value is 0.3191 (rounded). Because the *P*-value is high (greater than the significance level of $\alpha = 0.05$), we fail to reject the null hypothesis and conclude that there is not sufficient evidence to support the claim that cell phones have a mean radiation level less than 1.00 W/kg.

TI-83/84 PLUS

```
T-Test
 μ<1
 t=-.4848517201
 p=.3191133677
 x̄=.9381818182
 Sx=.4228668391
 n=11
```

If technology is not available, we can proceed to use the *P*-value approach summarized in Figure 8-1 or the critical value approach summarized in Figure 8-2. Because of the format of Table A-3, *P*-values can be somewhat difficult to find using that table, so the critical value approach is easier. We will proceed using the critical value approach.

Step 1: The claim that cell phones have a mean radiation level less than 1.00 W/kg is expressed in symbolic form as $\mu < 1.00$ W/kg.

Step 2: The alternative (in symbolic form) to the original claim is $\mu \geq 1.00$ W/kg.

Step 3: Because the statement $\mu < 1.00$ W/kg does not contain the condition of equality, it becomes the alternative hypothesis H_1. The null hypothesis H_0 is the statement that $\mu = 1.00$ W/kg.

H_0: $\mu = 1.00$ W/kg (null hypothesis)

H_1: $\mu < 1.00$ W/kg (alternative hypothesis and original claim)

Step 4: As specified in the statement of the problem, the significance level is $\alpha = 0.05$.

Step 5: Because the claim is made about the *population mean* μ, the sample statistic most relevant to this test is the *sample mean* $\bar{x}$. We use the *t* distribution as indicated in the preceding summary box.