Z-Test

As you can see, the z-test statistic closely resembles the t-statistic:

$$\mathrm{z} = \frac{\overline{x} - \mu}{\sigma_{\overline{x}}}$$

The only minor difference is that we do not write $S_{\overline{x}}$ but $\sigma_{\overline{x}}$ in the denominator. It's the same principle, but the Greek symbol indicates that the measure refers to a (known) population value and not to the sample. If, for example, we assumed that standard deviation in the population is 2.5, we would obtain the following test statistic:

$$\sigma_{\overline{x}} = \frac{2.5}{\sqrt{10}} = 0.791 \text{ and, finally, } z = \frac{2.30}{0.791} = 2.909$$