To solve the equation $3^t + 1 = 81$, follow these steps:

1. Subtract 1 from both sides of the equation:

$$3^t = 80$$

2. Take the logarithm of both sides to solve for t:

$$\log(3^t) = \log(80)$$

3. Use the power rule of logarithms, $\log(a^b) = b\log(a)$:

$$t\log(3) = \log(80)$$

4. Solve for t by dividing both sides by $\log(3)$:

$$t = \frac{\log(80)}{\log(3)}$$

Now, calculate the value:

$$t = \frac{\log(80)}{\log(3)} \approx \frac{1.9031}{0.4771} \approx 3.99$$

Thus, $t \approx 3.99$.