Exercise 324

Solve the following logarithmic equations.

$$5^x = 16$$

Solution

Take the logarithm of both sides.

$$\ln 5^x = \ln 16$$

Use the property of logarithms that allows the exponent of the argument to be brought down in front.

$$x \ln 5 = \ln 16$$

Divide both sides by $\ln 5$ to solve for x.

$$x = \frac{\ln 16}{\ln 5} \approx 1.723$$