5.3.99

Exercise 5.3.99 Suppose that $g(x) = 4^x + 2$.
(a) What is $g(-1)$? What point is on the graph of g? (b) If $g(x) = 66$, what is x? What point is on the graph of g?

Solution

(a) We have $g(-1) = 4^{(-1)} + 2 = \frac{1}{4} + 2 = \boxed{9/4.}$
Since $g(-1) = 9/4$ then the $\boxed{\text{point } (-1, 9/4)}$ is on the graph of g.

(b) If $g(x) = 66$ then $4^x + 2 = 66$ and, $4^x = 64 = 4^3$. Since an exponential function is one-to-one then $\boxed{x = 3}$.
Since $g(3) = 66$ then the $\boxed{\text{point } (3, 66)}$ is on the graph of g. □