The Illustrated Function

\[ f(x) = 5x + 3 \]

- Introductions
  When you see a statement like \( f(x) = 5x + 3 \) this is a function introducing itself. The statement tells you the name of the function, the letter (or symbol) to be interpreted as the variable, and the rule to be used to calculate values. The statement could be read “Hi my name is \( f \), my variable is \( x \), and my rule is \( 5x + 3 \).” If you see one of these statements, you are not being asked a question (yet).

- Uses
  After a function has been introduced, you can use it. \( f(2) \) is the question “What value will the function \( f \) give you if you give it a 2?” To answer the question you look for the introduction of the function \( f \). This is above. We want to use the rule \( 5x + 3 \). Because the introduction told us the variable is \( x \), we replace the \( x \) in \( 5x + 3 \) with our value 2. Thus \( f(2) = 5(2) + 3 = 13 \).

  Lets consider another example. \( g(x) = ax + 7 \). Remember this is an introduction—a statement. We are not being asked a question. One related question would be \( g(3) \). The introduction tells us to take \( ax + 7 \) and replace the \( x \) with a 3. Thus \( g(3) = a(3) + 7 = 3a + 7 \). We don’t know what \( a \) is, and we don’t care: that was not part of the question.