**JavaScript Functions**

**Review: Functions**

* What is a function?
* What is meant by “defining a function”? “Calling” a function?
* Do you have to write all the functions you use?
* What are the parts of this function? How would you call it?  
    
  // This function returns the sum of three numbers  
  function total(n1, n2, n3)  
  {  
   var t = n1 + n2 + n3;  
   return t;  
  }

**Functions and Variable Scope**

* *Scope* means the part of a program in which a variable is defined.
  + Try using the variable t outside of the function. Is it defined there? Check the F12 developer tools to see if there are any errors in the console.  
      
    /\* Function definition and call go here \*/         
     document.writeln(t);
  + Now try defining t outside the function. Now can I use it both inside and outside the function?  
    Variables defined inside a function are called *local variables*.  
      
    var t;  
    /\* function definition goes here (without var in front of t in the function body) \*/  
    document.writeln(t);
* Variables defined in a “wider” scope are valid anywhere in that scope below the point where they were defined.  
    
  document.writeln(t); // is t valid here?  
  var t = 0;  
    
  function total(n1, n2, n3)  {  
          t = n1 + n2 + n3; // is t valid here?  
          return t;  
    }  
  document.writeln(t); // is t valid here?
* Variables defined without the var keyword are *global variables*. Let’s revise our previous example and define a the variable t as a global variable:  
    
  function total(n1, n2, n3) {  
   t = n1 + n2 + n3;  
   return t;  
  }  
  sum = total(2, 3, 6);  
  document.writeln(sum);  
  document.writeln(t);  
  + The variable t is still defined inside the function, is its scope still just inside the function?

**Function Parameters and Scope**

* Function parameters are local variables in the body of the function  
    
  function total(n1, n2, n3)  {  
          var t = n1 + n2 + n3;   
          return t;  
    }  
  sum = total(2, 3, 6);  
  document.writeln(sum);  
  document.writeln(n1); // are n1, n2 and n3 valid here?
* Variables defined outside the function, with the same name as the function parameters, are different variables:  
    
  function total(n1, n2, n3)  {  
          var t = n1 + n2 + n3;   
          return t;  
    }  
    
  var n1 = 2, n2 = 3, n3 = 6;  
  sum = total(n1, n2, n3);  
  document.writeln(sum);  
  + How can we prove that n1, n2, and n3 defined outside the function are not the same variables as n1, n2, and n3 defined inside the function?  
      
    function total(n1, n2, n3)  {  
            var t = n1 + n2 + n3;   
     n1 = 0;  
            return t;  
      }  
      
    var n1 = 2, n2 = 3, n3 = 6;  
    sum = total(n1, n2, n3);  
    document.writeln(sum);  
    document.writeln(n1);