HTML5 & Javascript Programming – Tutorial Sheet 1

Expressions – you can test these in a browser console

1. Write Javascript expressions to calculate:

a) The V.A.T, at 20%, due on an item that costs £8.50 (before V.A.T)

b) The V.A.T, at 20% due on an item whose selling price is £8.50

c) The temperature in Farenheit when it is 10 degrees Celcius (C * 9/5 + 32)

d) The temperature in Celcius when it is 20 degrees Farenheit

e) The area of a circle whose radius is 10 cm

f) The circumference of a circle whose diameter is 40 cm

g) The square root of 160

h) The circumference of a circle whose area is 100cm^2

2. Javascript statements have been used to set up the following variables:

```
a = 10
b = 20
c = "Hello"
d = true
e = new Date("2015-08-07")
radius = 12.5
```

Write Javascript expressions that use these variables to calculate:

a) The V.A.T. at **b**% due on an item that costs £**a** (before V.A.T)

b) The V.A.T. at **b**% due on an item whose selling price is £**a**

c) The temperature in Farenheit when it is **a** degrees Celcius

d) The temperature in Celcius when it is **b** degrees Farenheit

e) The area of a circle whose radius is **a** cm

f) The circumference of a circle whose radius is **b** cm

g) The square root of 8 * b

h) The circumference of a circle whose area is **b** cm^2

Statements – test these in a browser console

3. Write Javascript statements that will:

a) Add the result of 2(a) to the item price (**a**) and assign this to the variable **sellingPrice**

b) Use the result of 2(b) to calculate the price before V.A.T. and assign this to **unitPrice**

c) Assign the temperature calculated in 2(c) to a variable **F**

d) Assign the temperature calculated in 2(d) to a variable **C**

e) Assign the result calculated in 2(e) to a variable **area**

f) Assign the result calculated in 2(f) to a variable **circumference**

g) Calculate the perimeter of a square whose area is 8 * b and assign it to **perim**

h) Calculate the circumference of a circle whose area is bcm^2 and assign it to **circum**

4. Use the Javascript **prompt()** function to ask the user to enter values for the variables listed in q2, and use these values in the statements in q3. Note, you should make the message use in the **prompt()** function calls appropriate – e.g.

a = prompt("Enter price before V.A.T")

Types in Javascript

5. State the *type* of each of the following (i.e. what would be printed on the Javascript console if *typeof* preceded the actual value (e.g. **typeof 1** prints "number"):

a) True, False
b) true, false
c) 0
d) "0"
e) 100
f) '100'
g) "100"
h) 3.14
i) 3 + .14
j) 3 + ".14"
k) Math.sqrt(100)
l) Math.sqrt("100")
m) 1/0
n) NaN
o) Infinity
p) infinity
q) x
r) (x = 0)
s) undefined
t) "undefined"
u) typeof undefined (i.e. typeof typeof undefined)
v) {}
w) []
x) typeof function zero() { return 0;}
y) typeof function zero() { return 0;}()

Boolean Expressions

6. State whether the following expressions evaluate to true or false:

a) 1 == "1"
b) 1 === "1"
c) null == undefined
d) null === undefined
e) 2 > 1 && 3 < 4
f) typeof "Fred" == "string"
g) 3 + 5 !== 8
h) 3 + 5 >= 8
i) "Fr" + "ed" === 'Fred'
j) "10" + "2" == 12
k) "10" + "2" == 102
l) "10" + "2" === 102
m) 4 > "Fred"
n) 4 < "Fred"
o) "4" < "Fred"
p) "105" < "27"