

# National 5 Computing Homework



## Computational Thinking

### Topic 2 - Values & Variables

Name -

Grade - / 37

Feedback

The Scratch program below uses three variables called “numOne”, “numTwo” and “numThree” to store values. As the program runs the values stored in each variable will change. The program code and the output it generates is shown below.

```

when clicked
  set numOne to 2
  set numTwo to 4
  set numThree to numOne * numTwo
    
```

Output

numOne	2
numTwo	4
numThree	8

Note the numThree ends up with the value 8. The last line of code sets:  
 $\text{numThree} = \text{numOne} * \text{numTwo}$  (or  $2 * 4$ ).

For each of the following problems, think through the code and write down the value of each variable at the end of the program. The problems will get harder and harder.

1. State the value of each variable once the program has been run. (3)

```

when clicked
  set numOne to 2
  set numTwo to 10
  set numThree to numTwo / numOne
    
```

Working	Answers
	numOne = <input type="text"/>
	numTwo = <input type="text"/>
	numThree = <input type="text"/>

2. State the value of each variable once the program has been run. (3)

```

when clicked
  set numOne to 3 * 2
  set numTwo to 10 / 5
  set numThree to numOne + numTwo
    
```

Working	Answers
	numOne = <input type="text"/>
	numTwo = <input type="text"/>
	numThree = <input type="text"/>

3. State the value of each variable once the program has been run. (3)

```

when clicked
  set numOne to 6
  set numTwo to numOne
  set numThree to numTwo + numOne
    
```

Working	Answers
	numOne = <input type="text"/>
	numTwo = <input type="text"/>
	numThree = <input type="text"/>

4. State the value of each variable once the program has been run. (3)

```

when clicked
  set numOne to 10 / 2
  set numTwo to numOne + 15
  set numThree to numTwo / 4
    
```

Working	Answers
	numOne = <input type="text"/>
	numTwo = <input type="text"/>
	numThree = <input type="text"/>



5. State the value of each variable once the program has been run. (3)

```

when clicked
set numOne to 6
set numTwo to 6
set numThree to numOne * numTwo / 12

```

Working	Answers
	numOne =
	numTwo =
	numThree =

6. State the value of each variable once the program has been run. (3)

```

when clicked
set numOne to 3 + 4 + 5
set numTwo to 3 * 12
set numThree to numTwo - numOne

```

Working	Answers
	numOne =
	numTwo =
	numThree =

7. State the value of each variable once the program has been run. (3)

```

when clicked
set numOne to 20 - 10
set numTwo to numOne * 10
set numThree to numTwo / 50
set numOne to numThree * 5

```

Working	Answers
	numOne =
	numTwo =
	numThree =

8. State the value of each variable once the program has been run. (3)

```

when clicked
set numOne to 3 + 8
set numThree to numOne * 2
set numTwo to numThree - 15
set numThree to numTwo * numOne
set numOne to numThree + 23

```

Working	Answers
	numOne =
	numTwo =
	numThree =

9. If a variable has not been given a value before it is automatically set to 0. State the value of each variable once the program has been run. (3)

```

when clicked
set numOne to 6
set numTwo to numOne + numTwo
set numThree to numTwo * 2

```

Working	Answers
	numOne =
	numTwo =
	numThree =



10. Remember that a loop will cause parts of your program code to repeat. State the value of each variable once the program has been run.

(1)

```

when clicked
  set numOne to 2
  repeat 3
    set numOne to numOne + 2
  
```

Working	Answers
	numOne =

11. State the value of each variable once the program has been run.

(3)

```

when clicked
  set numOne to 2
  repeat 2
    set numTwo to numOne + 2
    set numThree to numTwo + 3
    set numOne to numThree
  
```

Working	Answers
	numOne =
	numTwo =
	numThree =

12. An IF statement makes a decision about which code is executed next. State the value of each variable once the program has been run.

(3)

```

when clicked
  set numOne to 6 + 6
  set numTwo to numOne * 2
  if numTwo > 40
    set numThree to numOne
  else
    set numThree to numTwo
  
```

Working	Answers
	numOne =
	numTwo =
	numThree =

13. Now let's put it all together. Good luck with this one. State the value of each variable once the program has been run.

(3)

```

when clicked
  set numOne to 1
  set numTwo to 2
  set numThree to 3
  set numTwo to numOne * numThree
  set numThree to numTwo + numTwo
  set numOne to numTwo + numThree
  if numOne + numTwo + numThree > 20
    set numOne to 0
    set numTwo to numOne
    set numThree to numTwo
  else
    set numThree to 10
    set numOne to numThree
    set numTwo to numOne
  
```

Working	Answers
	numOne =
	numTwo =
	numThree =