National Centre for Computing Education

Raspberry Pi

Homework – Solutions

Task 1

Read the Python program below:

```
1 num1 = int(input())
2 num2 = 10 + num1 * 2
3 print(num2)
4 num1 = 20
5 print(num1)
```

Question 1

When this program is executed, if the user types `10` on the keyboard, what will be displayed on the screen as a result of executing **line 3**?

A. `30`

B. `40`

C. `10 + 10 * 2`

D. `10 + num1 * 2`

The correct answer is A: `30`.

Operator precedence is important for the calculation (answer B). Expressions are **evaluated** during execution, and it's their value that is stored in variables (answers C and D).

Question 2

When this program is executed, if the user types `10` on the keyboard, what will be displayed on the screen as a result of executing **line 5**?

A. `10`

B. `20`

C. `10` and `20`

D. There is an error in the program because a variable cannot hold two values at the same time

The correct answer is B: 20.

Line 4 **replaces** the value of **num1** (answer A); it does not assign it an additional value (answer D). Variables can only hold a single value at any given time (answer C).

Task 2

Rearrange the lines in the Python program below, so that you have a runnable program that holds a meaningful interaction with the user.

```
1 print("And where do you live", name)
2 print("I've never been to", location)
3 name = input()
4 print("What is your name?")
5 location = input()
```

Write your rearranged program below:

```
4 print("What is your name?")
3 name = input()
1 print("And where do you live", name)
5 location = input()
2 print("I've never been to", location)
```

Task 3

The **incomplete** program below is supposed to prompt the user for a distance in miles, and convert the distance that the user enters to kilometres.

```
1 print("Enter a distance in miles:")
2 miles = float(input()) # int is also correct
3 kilometres = 1.60934 * miles
4 print(miles, "miles is", kilometres, "km")
```

Step 1

Complete line 2 so that the value assigned to the `miles` variable is obtained from what the user types on the keyboard.

Step 2

Complete line 3 so that the program calculates the value of the `kilometres` variable to be the equivalent of the `miles` variable, converted to kilometres. Note that 1 mile is equal to 1.60934 kilometres.

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