

# Answers

## Part 1: Determining the minimum number of hours slept in one week

Yes, the program outputs the minimum number of hours for this set of data, which is 6 h.

## Part 2: Determining the maximum number of hours slept in one week

Pseudocode for this is provided in the hints at the end of the Master.

Sample code after this step is shown here, with the added blocks outlined in black:

```

when clicked
  resetVariables
  repeat (numNights)
    ask "Number of hours:" and wait
    set hoursOfSleep to answer
    change totalHours by hoursOfSleep
    if (hoursOfSleep < minimumHours) then
      set minimumHours to hoursOfSleep
    if (hoursOfSleep > maximumHours) then
      set maximumHours to hoursOfSleep
  end repeat

define resetVariables
  set numNights to 7
  set hoursOfSleep to 0
  set minimumHours to 24
  set maximumHours to 0
  
```

The program outputs the minimum and maximum number of hours for this set of data. The maximum is 9 h.

## Answers (cont'd)

### Part 3: Determining the total number of hours slept in one week

Pseudocode for this is provided in the hints at the end of the Master.

Sample code after this step is shown here, with the added block outlined in black:

```

when clicked
  resetVariables
  repeat (numNights)
    ask "Number of hours:" and wait
    set hoursOfSleep to answer
    change totalHours by hoursOfSleep
    if (hoursOfSleep < minimumHours) then
      set minimumHours to hoursOfSleep
    if (hoursOfSleep > maximumHours) then
      set maximumHours to hoursOfSleep

define resetVariables
  set numNights to 7
  set hoursOfSleep to 0
  set minimumHours to 24
  set maximumHours to 0
  set totalHours to 0
  
```

The program outputs the minimum, maximum, and total number of hours for this set of data. The total is 53 h.

## Answers (cont'd)

### Part 4: Determining the mean number of hours slept in one week

Pseudocode for this is provided in the hints at the end of the Master.

Sample code after this step is shown here, with the added blocks outlined in black:

```

when clicked
  resetVariables
  repeat numNights
    ask Number of hours: and wait
    set hoursOfSleep to answer
    change totalHours by hoursOfSleep
    if hoursOfSleep < minimumHours then
      set minimumHours to hoursOfSleep
    if hoursOfSleep > maximumHours then
      set maximumHours to hoursOfSleep
  set meanHours to totalHours / numNights

define resetVariables
  set numNights to 7
  set hoursOfSleep to 0
  set minimumHours to 24
  set maximumHours to 0
  set totalHours to 0
  set meanHours to 0
  
```

The program outputs the minimum, maximum, total, and mean number of hours for this set of data. The mean is 7.571429 or about 7.6 h.

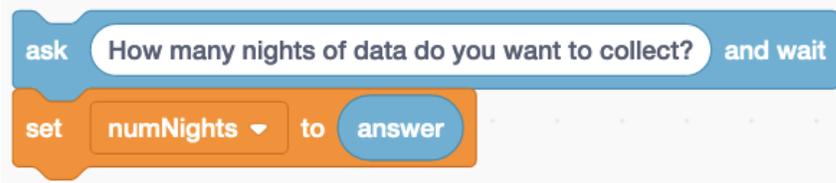
## Answers (cont'd)

### Extensions:

Sample answers for the first and fourth suggested extension are provided below.

The other extensions are more open and student responses may vary greatly.

- To allow the user to indicate the number of nights of data, students could add these blocks to the main program just after the Reset Variables subprogram is called.



- Once a list called userData has been created, a block can be added to the code before the repeat to empty previously saved data and another block can be added within the repeat to add the user's responses to the list. I moved the list of data to a place on the stage where it wouldn't cover an important part of the picture. Sample code and a sample list are shown below.



userData	
1	6
2	7
3	5.5
4	8
5	6.25
6	9
7	6.75
+ length 7 =	