

Student	Mark Vaughan	93%
---------	--------------	-----

Part 1

	Available	Marks
Create a vector <i>v1</i> that contains the values 1 to 16	2	2
Add the values 17 to 20 to the end of <i>v1</i> .	2	2
Delete elements 7, 8, 9 and 16 from <i>v1</i> . You should use a one method to remove elements 7, 8, 9 and another method to remove element 15.	4	4
Using <i>v1</i> , create a new vector <i>v2</i> that contains the 1 st to 4 th and 9 th to 12 th elements of <i>v1</i> .	3	3
Calculate <i>v1-v2</i> and display the results. This will generate a warning; in your comments, explain how R adds two vectors of different lengths	4	4
Create a new vector <i>v3</i> by selecting all odd elements of <i>v1</i> using a filter	2	2
Using a loop, create a new vector <i>v4</i> the same length as <i>v1</i> , that contains the value <i>TRUE</i> if the corresponding element of <i>v1</i> has an integer square root and the value <i>FALSE</i> otherwise. <i>HINT: You will need to use the sqrt() and round() functions</i>	6	6
Create a matrix <i>m1</i> with 4 rows from vector <i>v1</i>	3	3
Create a matrix <i>m2</i> with 2 columns from vector <i>v2</i>	3	1
Swap all of the elements in row 3 of <i>m1</i> with the elements in column 2 of <i>m1</i>	3	3
Create and display a new matrix <i>m3</i> from <i>m1</i> and <i>m2</i> where <i>m3</i> contains all of the columns of both source matrices	3	3
Replace all values in <i>m3</i> that are in (column 2 or column 3) and in (row 1 or row 2) with half their value	2	2
Remove row 1 of <i>m3</i>	4	4
Label the columns of <i>m3</i> as "s1", "s2", "s3", "s4", "s5", and "s6"	1	1
Create a vector <i>mmeans</i> that contains the means of each column	3	3
Create a barplot of <i>mmeans</i>	2	2
Commenting, white space etc.	5	5
TOTAL	52	50

Comments

Excellent layout, commenting and use of white space.

Q7 Good consideration of processing speed.

Q9 Although this is creating m2 with the same contents as v2, it isn't actually creating it from v2, which is what the question asked for.

Q10 you could also have done this by extracting the column into a temporary vector and swapping that way.

Q12 Elegant. 😊

Q16 Nice barplot.

Part 2

	Available	Marks
Generate arithmetical and perfect numbers	25	23
Creating and displaying an appropriate data frame	10	8
Updating the data frame	10	9
Commenting and use of white space	5	5
TOTAL	50	45

Comments

Excellent layout, commenting and use of white space.

Functions would normally be declared before global variables, as things like tmp are better scoped to their local functions. In this case your global variables are only needed in the main loop so would be better defined at that point. Otherwise this is elegant, well-structured code. Remember to display the data frame if the question asks for it; it's also a good idea to display the data frame when you update it just to check that it works. Yes, this is a debugging approach in many ways but it can be commented out in the production version of the code.

Technically 1 is not prime, as a prime has two factors, 1 only has 1.