Solutions and marking key for sample assessment task 4 (Investigation 2)

(42 marks)

***Note:** *Each item has been classified as Simple(S) or Complex(C) to provide teachers with some indication of the anticipated difficulty, which may be helpful with grading. However, it must be recognised that the classifications have been provided **a priori** and will need refining once the tasks have been administered (that is, after evidence as to the effect has been gathered).*

Question 1 **(4 marks)**

	Solution	Behaviours	Marks	Item (S/C)
a)	$\begin{bmatrix} 16 & 16 & 8 & 2 & 4 \\ 4 & 4 & 6 & 2 & 5 \\ 4 & 5 & 3 & 5 & 4 \\ 3 & 1 & 5 & 0 & 2 \\ 5 & 6 & 6 & 1 & 8 \end{bmatrix}$	Uses a bracket to contain data Enters correct values into correct positions	1 1	S S
b)	10	Correctly adds numbers in column 4	1	S
c)	Row 4	Reads matrix location.	1	S

Question 2 **(4 marks)**

Solution	Behaviours	Marks	Item (S/C)
$\begin{bmatrix} 3 & 2 \\ 2 & 3 \\ 1 & 4 \end{bmatrix}$	Given matrix has 3 rows Given matrix has 2 columns Places row and column data accurately in correct order Provides unlabelled matrix with brackets	1 1 1 1	C C S S

Question 3 **(11 marks)**

	Solution	Behaviours	Marks	Item (S/C)
a)	36%	Reads data in matrix	1	S
b)	22%	Reads data from correct location in matrix	1	C
c)	Percentage of household income spent on clothing (1) by people in the 41–50 age group (1)	Interprets correct location of data in matrix, relating both items to the context of the question	1 1	C C
d)	22+11+10+18 = 61 100 – 61 = 39 so 39%	Reads matrix and add numbers in row 4 Subtracts sum from 100	1 1	C C
e)	No. The numbers represent percentage and the total has no meaning because the percentages are for different groups and different items.	Recognises the lack of value held by the total of these numbers.	1	C
f)	$\begin{bmatrix} 36 & 26 & 20 & 22 \\ 25 & 22 & 18 & 11 \\ 16 & 14 & 12 & 10 \\ 15 & 20 & 18 & 18 \end{bmatrix}$ Percentage spent on housing Row 3, column 4	Writes matrix in transposed form Recognises relationship to original matrix Locates correct row number (1) and column number (1) for data item	1 1 2	S S S

Question 4 **(9 marks)**

	Solution	Behaviours	Marks	Item (S/C)
a)	• Total number of drivers (both male and female) caught breaking the law for the three different infringements • Scored kicks for the four players for the whole game • Total test marks for each of the three topics for each girl	Recognises that male and female make up the total amount Recognises that the two halves make up the whole game Recognises that the two matrices represent the two sections of the test	1 1 1	S S S
b)	(i) Values in the matrix are proportions of different values, not counts of objects (ii) $\begin{bmatrix}1\\2\\3\end{bmatrix}$ *and* $\begin{bmatrix}3 & 2 & 1\end{bmatrix}$ (iii) Values in corresponding positions i.e. same row and same column from two matrices are added (iv) Matrices must have the same number of rows. Matrices must have the same number of columns. The sum of the two numbers must have value/make sense	Recognises the sum does not make sense Provides matrices with different sizes Accurately describes the addition process States the need to have the same dimensions and/or the appropriateness of adding the data	1 1 2 2	C S S C