Question 1

Row 11 data: the mother was 27 years old when she had her baby, which weighed 4400grams (4.4kg) This was her second pregnancy and her second birth and the pregnancy lasted for 41 weeks (one week over usual full term). The baby was a boy who was delivered by an obstetrician using forceps.

The Gravida and the Para columns are different because some women have miscarriages, hence the number of pregnancies (Gravida) may be greater than the number of births (Para). The mother in Row 26 has had four miscarriages. The mother in Row 42 has had 2 miscarriages.

Question 2: Data types

Mother data

Age – Quantative and continuous

Gravida – Quantative and discrete

Para – Quantative and discrete

Term – Quantative and continuous

Medic – Qualitative

Nature of Delivery – Qualitative

Baby data

Mass – Quantative and continuous

Sex – Qualitative

Question 3: Graph types for one set of data

Age – Histogram or stem and leaf plot (ok, but only three stems 10, 20, 30).

Baby Mass – Histogram or stem and leaf plot.

Gravida – Bar graph or pie graph (ok, but 6 may be too many classes for an effective visual display and it may be easier to maker comparisons between class frequencies with the bar graph).

Para – Bar graph or pie graph (ok, but 6 may be too many classes for an effective visual display and it may be easier to maker comparisons between class frequencies with the bar graph).

Term – Histogram (each age could be a class e.g. 36-37, 37-38 and the histogram labelled with each age at the start of a bar. A frequency table may be sufficient here.

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Sex – Pie graph (two groups only allows for a clear visual image) probably more effective than a category bar graph as the pie chart allows a comparison to be made between each group (boys and girls) and the total data set highlighting the percentage of each more easily.

Medic – Pie graph (three groups only allows for a clear visual image) probably more effective than a category bar graph as the pie chart allows a comparison to be made between each group (boys and girls) and the total data set highlighting the percentage of each more easily.

Delivery – Pie graph (three groups only allows for a clear visual image) probably more effective than a category bar graph as the pie chart allows a comparison to be made between each group (boys and girls) and the total data set highlighting the percentage of each more easily.

Question 4

Modal age for the mothers is 27 years. Nine mothers are 27.

Age 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38

Frequency 1 0 2 0 4 1 3 3 4 4 7 9 4 1 5 1 3 0 1 0 1 1 1

The students should appreciate that this data would be better grouped as 23 is too many classes and also because it is really continuous data.

The mode is not necessary indicative of the central tendency of this or any distribution because the mode could occur at a relatively low or high end of the age range. In this case it is around the middle of the distribution, perhaps a little high.

The median age of the mothers is 26 years as the 28th and 29th result when the ages are in order are both 26-year.

The median weight of the babies is 3380g.

The mean weight of the babies is 3413g.

The mode individually is meaningless, but a modal class could be considered.

The median is a good indication, as the mean can be distorted by extreme values. For example, if premature babies were included, but the least pregnancy term in this data is 34 weeks giving a mass of 2590g which is not significantly different from the middle value (median) to distort the mean.

Mean term of the pregnancy 39.6 weeks.

Median term of the pregnancy is 40 weeks.

Modal term of the pregnancy is 40 weeks (really 40-41 weeks as this is continuous data) 24 out of the 56 mothers had their babies after the 40th week of their pregnancies.

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Yes expect the median, mode and mean to be similar in this case because there is very little variation in the data. The range is only 8 weeks (42-34).

Question 5

Measure the spread using the range or interquartile range.

Student may be familiar with the standard deviation from calculator work, but not necessarily in this work.

The range of mothers' age is 22 years (38-16).

Question 6

Possible questions:

Univariate data comparisons

Are the boy babies heavier than the girl babies?

Do the girls have more normal deliveries that the boys?

Do the girls tend to come from longer term pregnancies than the boys?

Bi-variate data comparisons

Is the age of the mother related to the number of miscarriages?

Have the older mothers had more babies?

Are older mothers more likely to have full term (longer term) babies?

Do heavier babies come from longer-term pregnancies?

Do heavier babies come from deliveries that needed greater intervention? (Students could scale the deliveries from normal to forceps to caesarian as increased levels of intervention in order to graph this comparison on a scatter graph.)

Are older woman more likely to have greater intervention during delivery?

Do younger woman have lighter babies?

Are GP's more likely to support mothers having normal deliveries?

Are more specialized medics delivering the babies who need the most intervention? (Students could scale the level of specialization from GP to midwife to obstetrician as increasing levels of specialization and deliveries from normal to forceps to caesarian as increased levels of intervention in order to graph this comparison on a scatter graph.)

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