1. Lucas
2. Agnes
3. Idris
4. Jacqueline

Group 2

PROBLEMS ON FERTILITY MEASURES

#1. Table 1 below shows the population of Scotland on 30 June in various years, together with the number of births taking place in those years. Use the data in the table to calculate crude birth rates and general fertility rate for the years in question.

Table 1

Year	Total Popn 000s	FPOP Aged 15-44 000's	Total Births in Year
1971	5236	1011	86700
1981	5180	1094	69100
1991	5107	1122	67000
1993	5121	1103	63300
1994	5132	1102	61700
1995	5136	1101	60100

#2. If the CBR in a country remains constant over a number of years, but the GFR increases steadily, what does this tell you about the country's population?

#3 The data in table 2 below relate to fertility in England and Wales in 1976 and 1993.

a) Calculate the GFR for 1976 and 1993

b) Calculate ASFRs for the two years

c) Using the 1976 population as the standard, calculate a standardized fertility rate for 1993.

Table 2

Age Group	1976 Births 000s	1976 FPOP 000's	1993 Births 000s	1993 FPOP 000's
15-19	57.9	1809	45.1	1455
20-24	182.2	1672	152.0	1831
25-29	220.7	1855	236.0	2070
30-34	90.8	1593	171.1	1967
35-39	26.1	1379	58.8	1729
40-44	6.5	1300	10.5	1750

#4 Table 3 gives information on the number of births to women in various age-groups and the ASFRs for Egypt and Tunisia.

a) Calculate the GFRs for Egypt and Tunisia

b) Calculate a standardized fertility rate for Tunisia, using the female population of Egypt as the standard population.

c) Calculate a standardized fertility ratio for Tunisia, using the female population of Egypt as the standard population.

d) Comment briefly on your results.

e) Calculate TFRs for Egypt and Tunisia

#5 The data in table 4 relate to a large-sample survey of the population of Malawi which took place in 1992.

The total number of urban women in the survey is 1334 and the total number of rural women is 10518.

a) Calculate GFRs for rural and urban areas.

Group 2

b) Calculate TFRs for urban and rural areas.
c) Calculate Standardized fertility rates for urban areas, using the rural area as the standard.
d) What do your results tell about fertility in Malawi?

Table 3

Age Group	Egypt, 1988 Births 000's	Egypt, 1988 ASFR	Tunisia, 1989 Births 000's	Tunisia, 1989 ASFR
15-19	436	0.021	6.3	0.017
20-24	403.8	0.194	43.6	0.131
25-29	578.9	0.317	55.7	0.195
30-34	403.4	0.269	41.1	0.176
35-39	242.4	0.191	21.6	0.113
40-44	77.7	0.073	5.7	0.041
45-49	25.1	0.026	1.1	0.009

Table 4

Age Group x-x+5	Percentage of all women in age-group Urban	Percentage of all women in age-group Rural	Age-Specific Fertility Rates (per woman) Urban	Age-Specific Fertility Rates (per woman) Rural
15-19	9.7	9.4	0.135	0.165
20-24	10.1	7.8	0.268	0.291
25-29	9.0	6.3	0.242	0.273
30-34	6.3	5.3	0.210	0.261
35-39	4.7	4.4	0.149	0.20
40-44	3.0	4.4	0.086	0.123
45-49	1.9	3.1	0.012	0.062

STANDARDIZATION APPLIED TO FERTILITY RATE

Both the Crude Birth Rate and the General Fertility Rate are affected by variations in the age structure. This is because fertility varies with age.

We can overcome this problem by using standardization to calculate standardized fertility rates and standardized fertility ratios. The procedure for calculating these is exactly the same as the one we used for calculating standardized death rates and standardized mortality ratios, save that we use just the female population instead of the total population, and the age-specific fertility rates instead of the age-specific death rates.

However, the only variations in the age structure which affect the crude birth rate and the general fertility rate are the variations within the child-bearing age range.