

Introduction to Demographic Methods

Session 9 Exercise

1. The following data come from the United States for 1990

Age Group	Female Population		Births				Stationary Population
	Total	Never Married	Total	First	Male	Unmarried Mother	
x, x+4	Total	Married	Total	First	Male	Mother	5Lx
10-14	8,322	8,322	12	11	6	11	494,443
15-19	8,709	8,274	522	391	267	345	493,629
20-24	9,389	5,895	1,094	515	560	399	492,399
25-29	10,625	3,300	1,277	465	653	227	490,989
30-34	10,971	1,804	886	231	454	117	489,203
35-39	10,013	1,041	318	67	163	44	486,812
40-44	8,913	712	49	9	25	8	483,465
45-49	7,004	353	2	--	1	8	478,365

-- Less than 500
 Total population (both sexes): 248,710
 (Numbers are in 1,000s)
 Assume all ever-married women are married

a) Check the correct CBR per 1,000

15.7 16.7 17.7

b) Check the correct GFR per 1,000

42.3 55.2 56.3

c) Check the correct TFR per 1,000

2.1 2.5 3.2

d) Check the correct general marital fertility per 1,000

82.0 94.0 100.1

e) Check the correct illegitimate fertility rate per 1,000

22.7 34.2 39.0

f) Check the correct age-specific first birth rate per 1,000 for the age group 20-24

37.8 54.9 69.1

g) Check the correct sex ratio at birth

99 101 105

h) Check the correct GRR

1.00 1.02 2.01

i) Check the correct NRR

0.99 1.00 2.00

j) Check the correct mean age of childbearing

26.5 27.3 28.2

2. Which of the following are true [T] and which are false [F]?

	T	F
The general fertility rate is equal to the sum of the out-of-wedlock rate and the general marital fertility rate		
You cannot calculate observed total fertility rates for the period 20-25 years before a survey, from birth history questions in the usual fertility survey of women age 15-49		
The mean age of mothers is calculated from the age-specific fertility rates		
If the sex ratio at birth is constant at 100, then $GRR = \frac{1}{2} * TFR$		
The parity progression ratio must decline with each increasing birth order		
A population with $NRR=1.0$ has the same number of births and deaths each year		

3. Using the following data on the parity distribution of 200 women age 50

	Parity			
	0	1	2	3
Number of women	50	50	50	50

a) Check the correct parity progression ratio from second to third birth

0.3 0.5 0.7

b) Check the correct proportion of women at parity one

0.25 0.50 0.75

c) Check the correct mean parity

1.0 1.5 2.0

4. The sum of the order-specific fertility rates across parity gives what rate?

GFR TFR NRR

5. The sum of age-order-specific fertility rates across parity gives what rate?

OSFR TFR ASFR

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Session 9 Answers

1.

- a) 16.7
- b) 56.3
- c) 2.1
- d) 94.0
- e) 39.0
- f) 54.9
- g) 105
- h) 1.02
- i) 1.00
- j) 26.5

2. F, T, F, T, F, F

3.

- a) 0.5
- b) 0.25
- c) 1.5

4. GFR

5. ASFR