Practice Questions set 2

We always use the cohort component model for these questions.

1. In year 2014, country A's age-specific birth rates are the same as 2013. However, there was a serious epidemic in 2013, which has specific effect on females of age 20-29. Consequently, the death rate for that age cohort was 2 in 2013, which is much higher than 0.15, the 2014 level. Assuming that the death rates for all other age cohorts are the same for 2013 and 2014. Assuming no migration, which of the following cannot happen?
    a. The TFR of country A decreased from 2013 to 2014
    b. The female population size of the age cohort 20-29 increased from 2013 to 2014
    c. The total number of birth increased from 2013 to 2014
    d. The total number of death stayed constant from 2013 to 2014
2. Compute TFR using the following table

Age group	15-19	20-39	40-45	46-49
ASFR	9.0	71.0	6.6	0.3

3. Given the following data from country A and country B
   Country A

Age group	15-29	30-44	45-49
Fem. Pop.	1000	1,000,000	1000
ASFR	10	80	1

   Country B

Age group	15-29	30-44	45-49
Fem. Pop.	1,000,000	1,000	1000
ASFR	50	60	1

   a. Compute and compare the total number of births of the two countries.
   b. Compute and compare the TFR of the two countries.

4. Given the following data collected in the year 2013

Age	Population	Death rate	Migration rate
80	5000	10	-3
81	4000	11	-2
82	3000	12	1
83	2000	13	2
84	1000	14	3
>=85	3000	17	0

Assuming death and migration rates stay constant, project the population size of age >=85 cohort in 2015.

Ans

1. A

Note that TFR only depends on ASFRs and is independent of population sizes. The rest of the events may or may not happen, depending on the population distribution.

2. 1.5058

We are not using 5 year cohorts, so be careful on the multipliers.

3. Country A

   No. of Birth: 80011

   TFR: 1.355

   Country B

   No. of Birth: 50061

   TFR: 1.655

   Country B has less births yet higher TFR. Thus having a high TFR does not necessarily imply a large number of births.

4. 5820.308

   Be careful on which migration rate to use.