

Population Calculation Worksheet

Here are some handy equations to help you with the problems on the back of this sheet. You will need to be familiar with the equations for your test and the AP exam.

1. Population density:

$$\left(\frac{\text{Population}}{\text{AREA}} \right) = \text{Population Density}$$

for example: $\left(\frac{270,000,000 \text{ people}}{9,166,605 \text{ sq. km}} \right) = 29 \text{ people per square kilometer}$

2. Birth or Death Rates:

$$\left(\frac{\# \text{ of births/deaths per year}}{\text{Total population}} \right) = \text{birth or death rate}$$

for example: $\left(\frac{23,452 \text{ births}}{942,721 \text{ people}} \right) = .025 = 2.5\% \text{ birth rate}$

3. Finding Population Growth Rate (r):

$$\left(\frac{\text{births} - \text{deaths}}{\text{total population}} \right) = r \quad \text{NOTE: this does not include immigration or emigration}$$

for example: $\left(\frac{20,000 \text{ births} - 15,000 \text{ deaths}}{500,000 \text{ people}} \right) = .01 = 1.0\%$

4. Finding the Doubling Time of a Population: THE RULE OF 70!!!

$$\left(\frac{70\%}{r \text{ (in percent form)}} \right) \text{ or } \left(\frac{.7}{r \text{ (in decimal form)}} \right) = \text{doubling time (years)}$$

for example: $\left(\frac{.7}{.07} \right) = 10 \text{ years}$

Population Problems

Given the following information, answer questions 1-3.

Schuhlsville is an island of 5000 square miles off the coast of Jabooty. There are currently 250,000 inhabitants of the island. Last year, there were 12,000 new children born (all cute and very smart) and 10,000 people were recorded as deceased (mostly drunkards and hooligans).

1. What is the current population density and what do you expect will happen to the density as time goes on?

2. What are the birth and death rates?

3. What stage in the demographic transition model do the birth and death rates suggest for this society? Refer to your text for reference.

4. What is the population growth rate (r)?

5. In what year will the population of Schuhlsville double?