**Urban Swell**

The data show the populations of the 10 most populated metropolitan areas in the United States in 1990.

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| --- | --- | --- | --- | --- | --- |
| Metropolitan  Statistical Area | Population  1980  (1,000) | Population  1990  (1,000) | Percent  Change  1980- 1990 | Average Annual Percent  Change  1980 - 1990 | Estimated  Population  In  2007 |
| New York |  | 19,342 |  | 0.331 |  |
| Los Angeles | 11,498 |  |  | 2.37 |  |
| Chicago | 8,114 |  |  | 0.153 |  |
| Washington |  | 6,727 | 16.2 | 1.51 |  |
| San Francisco |  | 6,253 | 16.5 | 1.54 |  |
| Philadelphia | 5,649 |  |  | 0.424 |  |
| Boston |  | 5,455 |  | 0.633 |  |
| Detroit | 5,293 | 5,187 |  | -0.202 |  |
| Dallas | 3,046 |  | 32.6 | 2.86 |  |
| Houston |  | 3,731 |  | 1.81 |  |

The F = P(1 + r )t can be used to predict the future population (F) for t years in the future when you know the present population (P) and the yearly growth rate for the population

Use the Model for population growth

1. Complete the table

2. For which metropolitan area does the situation illustrate exponential decay?

3. At these growth rates, which population should be the first to double its 1980 population? In what year should this occur?

4. How many years should it be before the population of the Los Angeles area passes the population of the New York area?

5. At these growth rates, predict the Metropolitan Statistical Area Populations for the year 2007. Include these in the table above