

Population Math

Formulas:

$$\text{Population Density: } \frac{\text{total population}}{\text{total area}}$$

$$\text{Birth Rate (as a \%): } \left(\frac{\text{total births}}{\text{total population}} \right) \times 100$$

$$\text{Birth Rate (per 1000): } \left(\frac{\text{total births}}{\text{total population}} \right) \div 1000$$

$$\text{Death Rate (as a \%): } \left(\frac{\text{total deaths}}{\text{total population}} \right) \times 100$$

$$\text{Death Rate (per 1000): } \left(\frac{\text{total deaths}}{\text{total population}} \right) \div 1000$$

$$\text{Crude Birth Rate: } \left(\frac{\text{total \# births}}{\text{total population}} \right) \times 1000$$

$$\text{Crude Death Rate: } \left(\frac{\text{total \# death}}{\text{total population}} \right) \times 1000$$

$$\text{Population Change: } \frac{(\text{births} + \text{immigration}) - (\text{deaths} + \text{emigration})}{\text{total population}}$$

$$\text{Population Growth Rate: } \left(\frac{(\text{births} + \text{immigration}) - (\text{deaths} + \text{emigration})}{\text{total population}} \right) \times 100$$

$$\text{Doubling Time: } \frac{70}{\% \text{ growth rate}} = \text{years to double}$$

$$\text{Rate of Change: } \frac{(\text{new-old})}{\text{old}}$$

$$\text{Percent Change: } \frac{(\text{new-old})}{\text{old}} \times 100$$

Natural Rate of Population Increase: births-deaths