Grade 9 Mathematics Worksheet

Problem solving

Questions:

1. The world population is said to be increasing at an alarming rate. Here are some of the statistics: (http://www.geohive.com/default1.aspx)

Populations		
Country	1950	2010
India	369 880 000	1 184 090 490
China	562 579 779	1 347 563 498
United States	152 271 000	309 162 581
South Africa	13 595 840	49 109 107
The World	2 555 948 654	6 786 217 993

a) Calculate each country's percentage growth over these 60 years.

b) Based on your calculation in (a), which country will have the largest population in 2050?

c) What will the world population be in 2050?

d) What fraction of the world population will be South Africans in 2050?

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Solution

1. a) The % growth per country for the 60 years:

	Growth
Country	
India	$100\left(\frac{1184090490}{369880000}-1\right)=220\%$
China	$100\left(\frac{1347563498}{562579779}-1\right)=139,5\%$
United States	$100\left(\frac{309162581}{152271000}-1\right)=103\%$
South Africa	$100\left(\frac{49109107}{13595840}-1\right)=261\%$
The World	$100\left(\frac{6786217993}{2555948654}-1\right)=165,5\%$

b)

	Average Growth per decade	**Population in 2050**
Country		
India	$\frac{220\%}{10}$ $=22\%$	$1\ 184\ 090\ 490(1,22)^4=2623156585$
China	$\frac{139,5}{10}\%$ $=13,95\%$	$1\ 347\ 563\ 498(1,1395)^4=2271990738$
United States	$\frac{103\%}{10}$ $=10,3\%$	$309\ 162\ 581(1,103)^4=457603117$
South Africa	$\frac{261\%}{10}$ $=26,1\%$	$49\ 109\ 107(1,261)^4=124171630$

The largest population will be India.

c)

The World	$\frac{165,5\%}{10}$ $=16,55\%$	$6\ 786\ 217\ 993(1,1655)^4=1,252\times10^{10}$

d) $\frac{124171630}{12522092790}=0,00991620426$. This means that we will be less that 1% of the world's population.

Educators may want to link these statistics to the topic of population density.