MCU414

Exponential Functions Worksheet #2

1. Each year, the frog population of a small wooded area declines by 5% in contrast to the previous year. If this wooded area now has 2000 frogs, how many frogs will be present 10 years from now?
2. Jonathan invests $5 400 in a guaranteed investment certificate with an annual interest rate of 3.6%. What will be the value of the investment after 10 years if no withdrawals are made?
3. In a report published in 2004, the United Nations calculated the population growth rate to be 1.22% for each year. One year later, the same organization estimated the world population to at

6 454 000 000.

* 1. According to this information, what was the world population in 2004?
  2. What will the world population be in 2050?
  3. If the growth rate remains the same, what rule allows you to calculate the world population in relation to the number of years elapsed since 2004?

|  |  |
| --- | --- |
| Time (h) | Number of bacteria |
| 0 | 3000 |
| 1 | 6000 |
| 2 | 12 000 |
| 3 | 24 000 |
| 4 | 48 000 |

1. The adjacent table of values provides information about a bacteria culture.
   1. Determine the rule that would allow you to calculate the number of bacteria as a function of time.
   2. When will the number of bacteria reach:

1) 192 000 2) 3 072 000

1. **FINAL EXAM QUESTION**

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