**APES Review Worksheet #1**

1. List the 4 most populated countries in the world.

Population

Time

 1) 3)

 2) 4)

1. Use the axes to the right for the following:
	1. Draw and label a line that represents linear growth.
	2. Draw and label a line that represents exponential growth.
2. Define the term ecological footprint

1. Write an equation for the rule of 70:
2. Perform the following calculations: (Show all of your work in a logical progression to the final answer.)
	1. A city has a population of 50,000 in 2012. If the population of the city grows at an annual rate of 2%, the year in which the population will reach 100,000 is \_\_\_\_\_\_\_\_\_\_\_\_\_ and the year it will reach 200,000 is \_\_\_\_\_\_\_\_\_\_\_\_\_.

 Show work:

* 1. A country’s population was 12 million in 1992 and in 2012 it is 24 million. If the population grew at a constant rate, that percent rate of growth was \_\_\_\_\_\_\_\_\_\_\_\_\_.

 Show work:

1. Complete the following table by writing “high” or “low” in each box below.

|  |  |  |
| --- | --- | --- |
| Characteristic | More Developed Counties | Less Developed Countries |
| per capita GDP |  |  |
| degree of industrialization |  |  |
| infant mortality rate |  |  |
| relative fossil fuel use |  |  |
| ecological footprint |  |  |
| greenhouse gas emissions |  |  |
| risk from heart disease |  |  |
| risk from infectious diseases |  |  |

1. Provide three examples of renewable resources and three examples of nonrenewable resources.

 renewable: 1) nonrenewable: 1)

 2) 2)

 3) 3)

1. Define the following:
	1. total fertility rate

* 1. replacement level fertility

* 1. infant mortality rate

* 1. crude birth rate

* 1. crude death rate

1. Describe the circumstances that will result in a Tragedy of the Commons.

1. Describe an example of a Tragedy of the Commons.

1. Use the axes to the right for the following:

Population

Time

* 1. Draw a line showing a population that exemplifies logistic growth. (s-curve)
	2. Draw label the carrying capacity.
1. Describe an example of a positive feedback loop.

1. Perform the following calculation. Show all of your work. In a particular year a population has the following characteristics: the crude birth rate is 45, the crude death rate is 20, the immigration rate is 1%, and the emigration rate is 0.5%. The percent rate of growth for that year is \_\_\_\_\_\_\_\_\_\_.

 Show work:

1. Use the axes below to draw and label lines representing the birth rate, death rate and total population size during the idealized demographic transition of a country. Include, written directly onto the graph, an explanation for each change in the birth rate, death rate and total population size.
2. On the axes below, draw and completely label four age-structure diagrams that represent slow growth, rapid growth, negative growth, and zero population growth (include labels on the x- and y-axes)

Rate/

Population

size

Time

1. Provide three examples organic compounds and three examples of inorganic compounds.

 organic: 1) inorganic: 1)

 2) 2)

 3) 3)

1. Arrange the following types of electromagnetic radiation in order from lowest to highest energy: ultraviolet, microwave, infrared, gamma, radio, x-ray, visible.

1. Arrange the following types of visible light in order from shortest to longest wavelength: green, orange, red, yellow, blue, violet.

Survivorship

Time

1. Draw and label three survivorship curves using the axes on the right.
2. Describe an example of a negative feedback loop.