Name _____ Date _____ Class_____

LESSON 7-2

Problem Solving

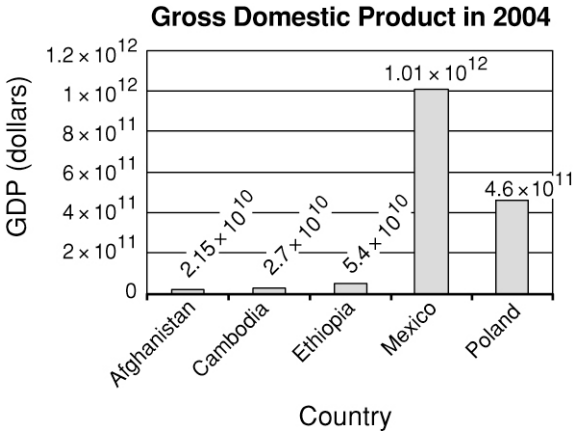
Powers of 10 and Scientific Notation

Write the correct answer

1. Insects can multiply rapidly during the summer. A pair of houseflies could potentially grow to a population of 1.91×10^{20}. If all the descendants of a female cabbage aphid lived, the population could increase to 1.56×10^{24}. Which population would be larger?

_____

2. The graph shows the gross domestic product (GDP) for several countries around the world. Identify the country whose GDP is twice that of another country. Write the GDPs of both countries in standard form.



3. The 2005 population estimates of five countries are listed below.

Brazil	1.86×10^8
India	1.08×10^9
Kenya	3.38×10^7
Philippines	8.79×10^7
United Kingdom	6.04×10^7

List the countries in order of population size from least to greatest.

_____

_____

_____

_____

The table shows astronomical data about several planets.
Use the table to answer questions 4–7. Select the best answer.

4. An AU is an astronomical unit. One AU equals 150,000,000 km. What is that measure in scientific notation?

A 1.50×10^8 km C 1.50×10^{10} km

B 1.50×10^9 km D 1.50×10^{11} km

5. Suppose the mass of Mars were written in standard form. How many digits would be to the *left* of the decimal?

F 23 H 25

G 24 J 26

6. Which of these is the average distance from the Sun to Mercury expressed in scientific notation?

A 0.38 AU C 3.8×10^{-1} AU

B 3.8×10^1 AU D 38×10^{-2} AU

7. What is the diameter of the Earth in scientific notation?

F 1.28×10^2 km H 1.28×10^4 km

G 1.28×10^3 km J 1.28×10^5 km

Astronomical Data for the First Five Planets

Planet	Avg. Distance from Sun (AU)	Diameter (km)	Mass (kg)
Mercury	0.38	4,880	3.20×10^{23}
Venus	0.72	12,100	4.87×10^{24}
Earth	1	12,800	5.97×10^{24}
Mars	1.52	6,790	6.42×10^{23}
Jupiter	5.20	143,000	1.90×10^{27}