Additional Practice:

1. The population of Mathville is 8.4×10^3. The population of Algeville is 1.3×10^4. How many more people are there in Algeville?

$1.3 \times 10^4 - 8.4 \times 10^3$
$1.3 \times 10^4 - 0.84 \times 10^4 = 0.46 \times 10^4$

4.6×10^3 more people

2. If the speed of light is 3×10^8 meters/second, how many seconds does it take light to reach the Earth, if the sun is 1.5×10^{11} meters from Earth?

$\dfrac{1.5 \times 10^{11}}{3 \times 10^8} = 0.9 \times 10^3 = 5 \times 10^2$

5×10^2 seconds

3. A factory that has 6×10^3 workers makes 2.4×10^5 products each day. What is the average amount of products made per worker?

$\dfrac{2.4 \times 10^5}{6 \times 10^3} = 0.4 \times 10^2 = 4 \times 10^1$

4×10^1 Products

4. In the US, the amount of electricity generated by coal in 2008 was 1.8×10^{12} kWh and 9×10^{11} kWh in 2020. What was the decrease over those 12 years?

$1.8 \times 10^{12} - 9 \times 10^{11} = 18 \times 10^{12} - 0.9 \times 10^{12}$
$= 0.9 \times 10^{12} = 9 \times 10^{11}$

9×10^{11} KWh

5. The volume of Lake Rason is approximately 2.56×10^5 km³. Lake Rushton is 25 times the volume of Lake Rason. What is the volume of Lake Rushton?

$2.56 \times 10^5 \cdot 25 = 64 \times 10^5$
$= 6.4 \times 10^6$

6.4×10^6 Km³

6. The speed of light in cold air is approximately 3×10^8 meters/sec. The speed of sound in cold air is approximately 3×10^2 meters/sec. The speed of light in cold air is how many times the speed of sound in cold air?

$\dfrac{Light}{sound}$ $\dfrac{3 \times 10^8}{3 \times 10^2} = 1 \times 10^6$

1×10^6 times as fast

7. There are approximately 3.1×10^8 people in the United States. If on average each person has 4.1×10^1 coins lying around on dressers, in pockets, in cars, etc., how many total coins do all the people in the U.S. have?

$3.1 \times 10^8 \cdot 4.1 \times 10^1 = 12.71 \times 10^9$
$= 1.271 \times 10^{10}$

1.271×10^{10} coins

8. The SR-71 "Blackbird" is one of the world's fastest airplanes. It is capable of traveling at a cruising speed of Mach 3, or three times the speed of sound. The speed of sound is approximately 7.67×10^2 miles per hour. What is Mach 3 in miles per hour?

$(3)(7.67 \times 10^2) = 23.01 \times 10^2$
$= 2.301 \times 10^3$

2.301×10^3 mph