M/J Grade 8 Pre-Algebra

Warm-Up 12

1. A star is 2.4×10^6 light years away from Earth. A spaceship travels towards the star at 3×10^{-2} times the speed of light (about 3×10^8 meters per second). How many years will it take for the spaceship to reach the star?

2. A bacterium is 3×10^{-6} meters in length. A scientist is using a microscope to view 2×10^3 bacteria lined up end to end. What is the total length in meters?

3. The speed of light is approximately 3×10^8 meters per second. A spacecraft travels at 5×10^6 meters per second. How many times faster is the speed of light compared to the spacecraft?

4. A scientist has 6.022×10^{23} molecules of a substance, known as a mole. The scientist needs 3×10^{24} molecules for an experiment. How many moles does the scientist need?