

TEKS A.11.A



LESSON

7-4

Problem Solving

Division Properties of Exponents

Write the correct answer.

- Kudzu is a fast-growing vine that has become a nuisance in the southeastern United States. It covers 2.5×10^5 acres in Alabama. In 2004 the population of Alabama was estimated to be 4.45×10^6 people. How many acres of kudzu are there for each person in Alabama?

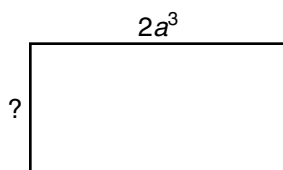
- A cylindrical water tank has a volume of $6\pi x^2 y^4$ cubic meters. The formula for the volume of a cylinder is $2\pi r^2 h$. The water tank has a radius of xy meters. What is its height?

- Voyager 2 was launched in 1979 to explore the planets of the outer solar system. The spacecraft travels an average of 4.68×10^8 kilometers in one year. Determine the speed of Voyager 2 in kilometers per hour. (*Hint:* 1 year = 8760 hours)

- The population of Laos is 6.22×10^6 . In 2004 its gross domestic product (GDP) was $\$1.13 \times 10^{10}$. The population of Norway is 4.59×10^6 . In 2004 its GDP was $\$1.83 \times 10^{11}$. What is the GDP per capita, or per person, of Laos and Norway?

Select the best answer.

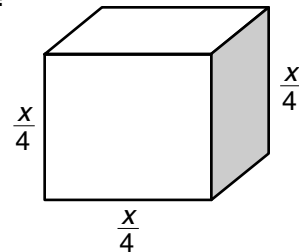
- A rectangular parking lot has an area of $10a^3 b^6$ square yards. What is the width of the parking lot?



- A** $5b^2$ yards **C** $5b^6$ yards
B $5b^3$ yards **D** $25b^6$ yards
- The wavelengths of electromagnetic radiation vary greatly. Green light has a wavelength of about 5.1×10^{-7} meters. The wavelength of a U-band radio wave is 2.0×10^{-2} meters. About how much greater is the wavelength of a U-band radio wave than that of green light?

- A** 2.55×10^{-9} **C** 3.92×10^4
B 2.55×10^{-5} **D** 3.92×10^5

- A storage chest is shaped like a cube. What is the volume of the storage chest?



- F** $\frac{x^3}{64}$ cubic units **H** $\frac{32}{x^3}$ cubic units
G $\frac{x^3}{32}$ cubic units **J** $64x^3$ cubic units
- Puerto Rico has an area of 5.32×10^3 square miles and a population of 3.89×10^6 . What is the population density of Puerto Rico in persons per square mile?

- F** 1.37×10^{-3} **H** 7.31×10^2
G 1.37×10^{-2} **J** 7.31×10^3