

Name _____

Date _____

Aim: How can we compare and order numbers in scientific notation?

DO NOW:

1. Which country has the greatest population?

China (Highest exponent)

2. Which country has the least population?

Iceland (smallest exponent)

3. Order the populations from least to greatest.

Iceland, Fiji, Russia, China

Country	Population
China	1.273×10^9
Fiji	844,000 8.44×10^6
Iceland	2.78×10^5
Russia	142,300,000 1.423×10^8

4. How many times greater is the population of Russia than the population of Iceland?

= Just set the problem up

Division Problem:

$$\frac{1.423 \times 10^8}{2.78 \times 10^5}$$

Write the product or quotient in scientific notation.

5. $(3 \times 10^{-4})(9.2 \times 10^{-7})$

27.6×10^{-11}

2.76×10^{-10}

6. $\frac{56 \times 10^{10}}{2.8 \times 10^8}$

20×10^2

2.0×10^3

7. $(73,000)(0.0000056)$
 $(7.3 \times 10^4)(5.6 \times 10^{-6})$

40.88×10^{-2}

4.088×10^{-1}

8. $\frac{93,000,000}{0.0003}$

$\frac{9.3 \times 10^7}{3 \times 10^{-4}}$

3.1×10^{11}

$7 - (-4)$
 $7 + 4$
 11

9. A blue star has a temperature between 36,000°F and 90,000°F.

a. Write the temperature range using scientific notation. 3.6×10^4 to 9×10^4

b. Is a star with temperature 8.8×10^3 degrees Fahrenheit warmer or cooler than a blue star?
Cooler

10. You fill a large water tank with 3.4×10^3 gallons of water. About 6.1% of the water is not fresh water. How many gallons of fresh water are in the tank?

$$(3.4 \times 10^3) (.061)$$

$$(3.4 \times 10^3) (6.1 \times 10^{-2})$$

$$20.74 \times 10^1$$

$$\boxed{2.074 \times 10^2}$$

11. A gymnasium is 100 yards wide, 150 yards long, and 30 yards tall.

a. Write the dimensions in scientific notation.

$$1 \times 10^2 \text{ yd wide}$$

$$3 \times 10^1 \text{ yd tall}$$

$$1.50 \times 10^2 \text{ yd long}$$

b. Find the volume of the building. Write your answer in scientific notation.

$$(1 \times 10^2) (1.5 \times 10^2) (3 \times 10^1)$$

$$\boxed{4.5 \times 10^6} \text{ yd}^3$$

c. The cooling system is designed to cool a building up to 5.0×10^5 cubic yards.

What size addition could be added to the gym without needing a new cooling system?

They could still add up to 0.5×10^5 cubic yards without needing a new cooling system.

12. How many times greater is the radius of a basketball than the radius of a marble?



Radius = 1.143×10^1 cm



Radius = 5×10^{-1} cm

$$\frac{1.143 \times 10^1}{5 \times 10^{-1}}$$

$$5 \overline{) 1.143} \begin{array}{r} 0.2286 \\ \underline{5} \\ 11 \\ \underline{10} \\ 13 \\ \underline{10} \\ 3 \end{array}$$

$$0.2286 \times 10^2$$

$$\boxed{2.286 \times 10^1}$$