Use the laws of exponents to multiply and divide expressions containing numbers written in scientific and decimal notation to solve real-world problems. Include problems on estimation. CCSS.MATH.CONTENT.8.EE.A.3 | G8M2C12E1

You've successfully rescued people from the flood-prone area. Some organizations have decided to help them out.

1 There are approximately 10^6 people at your relief camp. An organization provides ten food packets for each person per week. Find the number of food packets distributed to the people over a week. Check the correct box.

☐ 10^4 ☐ 10^5

☐ 10^8 ☐ 10^7

2 The flood relief organization receives 2 donations as shown. Check the highest donation.

Donation A

☐ $\$6 \times 10^5$

Donation B

☐ $\$0.9 \times 10^6$

3 For every 120 people in the relief camp, one health kit is needed. Find the number of kits required for 60×10^5 people. Write your answer in the boxes given below and circle the correct option.

$$\text{Number of kits} = \frac{\text{Total number of people}}{\text{Number of people per kit}} = \frac{\square\square \times 10^5}{\square\square\square}$$

5×10^7 5×10^3 5×10^5 5×10^4

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4 The tsunami relief organization receives donations from 4 citizens. Write the numbers (1 to 4) in the boxes below according to their contribution from highest (1) to lowest (4).

Citizen 1	Citizen 2	Citizen 3	Citizen 4
☐	☐	☐	☐
$\$0.0345 \times 10^{6}$	\$0.5 × Citizen 1's donation	$\$34.5 \times 10^{2}$	$\$34567500 \times 10^{-2}$

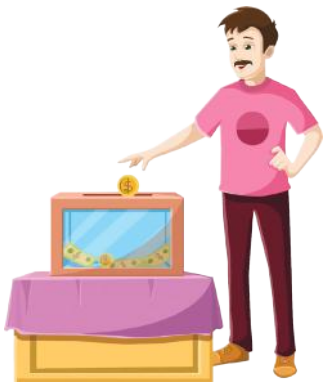
5 The budget set aside by two organizations for rescuing people is given below. Compare the values and write a relation between them in the boxes given below.

Budget of Organization X = A
$\$15 \times 10^{5}$

Budget of Organization Y = B
$\$7.5 \times 10^{6}$

$$\frac{B}{A} = \frac{\square \cdot \square \times 10^{6}}{\square\square \times 10^{5}} = \square$$

The relation between them is B = ☐ × A.



6 An organization supplies 2300 thousand water bottles to the people at the relief camp. Check the correct number of bottles.

Hint: 1 million = 1,000,000

☐ 2.3 million
☐ 23 million
☐ 2.3 billion
☐ 23 billion

Operations on Numbers in Scientific Notation - 1

Use the laws of exponents to multiply and divide expressions containing numbers written in scientific and decimal notation to solve real-world problems. Include problems on estimation. **CCSS.MATH.CONTENT.8.EE.A.3 | G8M2C12E1**

To split the fund properly, you need information about the damages caused by the disasters. Let's look at the information gathered by the relief committee.

1 According to the reports, there is a loss of 982,953 acres of land. Represent this area as its nearest power of 10. Check the box that represents the same.

☐ $10^4 \times 10^2$ ☐ $10^{12} \times 10^5$ ☐ $10^7 \div 10^2$ ☐ $10^{12} \div 10^5$

2 The coastal area is divided into two sides, east side and west side. The area of damaged land (in acres) along the two coastal sides is given below. Write the relation between the areas in the boxes given below.

Hint: 1000 million = 1 billion

West side

East side

0.000121 billion acres

0.847 million acres

Area of damaged land in the west side = ☐.☐☐☐ million acres

$$\frac{\text{Area of damaged land in the east side}}{\text{Area of damaged land in the west side}} = \frac{\square.\square\square \times 10^{-1} \text{ million acres}}{\square.\square\square \times 10^{-1} \text{ million acres}}$$

$\Rightarrow$ Area of damaged land in the east side = ☐ × Area of damaged land in the west side

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3 The loss due to damaged buildings and cars on both sides of the coastal area is given below. Check the coastal area that has suffered more loss.

West

☐

25463700×10^{-6} million

East

☐

65463700×10^{-5} million

4 The loss suffered by two companies, 'A' and 'B' are \$98,450,000 and $\$1.9945000 \times 10^{8}$, respectively. Follow the steps to compare the losses and write the relation between them in the boxes given below.

Step 1: Circle the nearest value of 98,450,000.

10,000,000 100,000,000 1,000,000,000

Step 2: Representation of the above circled amount in scientific notation: ☐ . ☐ × ☐☐ ☐

Step 3: Check the box for the number that is nearest to 1.9945000.

☐ 3 ☐ 4 ☐ 2 ☐

Step 4: 1.9945000×10^{8} can be rounded off to: ☐ . ☐ × ☐☐

Loss suffered by company B = ☐ × Loss suffered by company A

Use the laws of exponents to multiply and divide expressions containing numbers written in scientific and decimal notation to solve real-world problems. Include problems on estimation. CCSS.MATH.CONTENT.8.EE.A.3 | G8M2C12E1

After the tsunami, the Tower of Ganoi has to be reconstructed. Use your knowledge as an official in the Disaster Management Authority to help build the tower with a strong foundation.

The foundation of the tower is to be build with high iron rods and bricks. Let's find the relation between the number of bricks and iron rods used.

Step 1: Follow the guidelines to choose the number of rods and bricks you want to build the tower's foundation.

Guidelines:

- The number of rods must lie between 4,100,000 to 5,500,000 and should be a multiple of 100,000.
- The number of bricks must lie between 20,000,000 to 26,000,000 and should be a multiple of 1,000,000.

Write your answers for the following questions in the boxes given below.

The chosen number of rods = ☐☐☐☐☐☐☐

Represent the chosen number of rods in scientific notation and let this value be A.

A = ☐ . ☐ × 10^6

The chosen number of bricks = ☐☐☐☐☐☐☐☐

Represent the chosen number of bricks in scientific notation and let this value be B.

B = ☐ . ☐ × 10^7

Use the laws of exponents to multiply and divide expressions containing numbers written in scientific and decimal notation to solve real-world problems. Include problems on estimation. **CCSS.MATH.CONTENT.8.EE.A.3 | G8M2C12E1**

Step 2: Divide the number of rods and bricks to find the relation between them. Write your answer in the boxes given below.

$$\frac{B}{A} = \frac{\square . \square \times 10^{7}}{\square . \square \times 10^{6}} = \square . \square$$

(Round off to one decimal point)

The relation between them is $\square = \square . \square \times \square .$

Step 3: The number of cement packets needed (C) is equal to 0.25 times the number of bricks. Find the number of cement packets needed for the reconstruction of the tower. Write your answer in the boxes given below.

Approximate the number of bricks to its nearest 10,000,000's and represent it in its scientific notation: $\square \square \times 10^{7}$

Number of cement packets (C) = $\square \square \times 10^{7} \times 0.25$

$C = \square \square \times 10^{6}$

Step 4: Write the relation between the number of rods (A), bricks (B), and cement packets needed (C), in the boxes given below.

Relation between them is B > $\square$ > $\square$.

Great! With your help, the Tower of Ganoi now has a stronger foundation that can withstand any future earthquakes. Kudos!