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Assessment

Exponents and Scientific Notation: End-of-Unit Assessment (B)

Do not use a calculator.

1. Select **all** the expressions that equal 6×10^5.

   A. $(3 \times 10^8)(2 \times 10^{-2})$

   B. $600,000,000 \times 10^{-3}$

   C. $\frac{1.2 \times 10^7}{2 \times 10^2}$

   D. 600,000

   E. 60^5

2. Select **all** the expressions that equal 7^8.

   A. $7^{-2} \cdot 7^{10}$

   B. $(7^3)^5$

   C. $\frac{(7^3)^4}{7^{-4}}$

   D. $(7^4)^{-2}$

   E. $\frac{7^6}{7^{-2}}$

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3. About 3.2×10^8 people live in the United States. About 3.9×10^7 people live in Canada. And about 1.1×10^8 people live in Mexico. About how many people live in all three countries altogether?

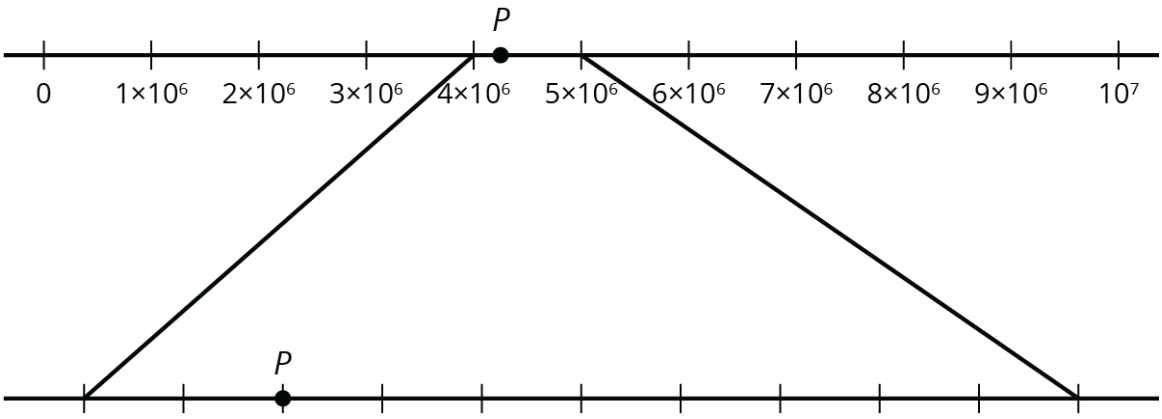
   A. 4.69×10^7

   B. 4.69×10^8

   C. 8.2×10^7

   D. 8.2×10^8

4. What number is represented by point P ?



5. There were approximately 3×10^5 firefighters in the United States in 2012. The average salary of a firefighter was $45,000.

   About how much did all firefighters in the United States earn from their salary altogether in 2012? Express your answer using scientific notation.

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6. Place a number in each box so that each equation is true and each equation has at least one negative number.

   a. $5^{\square} \cdot 5^3 = 5^{\square}$

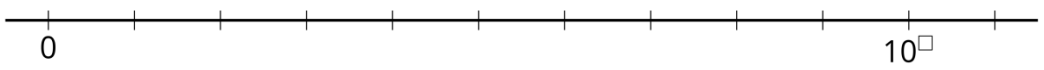
   b. $\dfrac{5^{\square}}{5^{\square}} = 5^0$

   c. $(5^{\square})^{\square} = 5^{-20}$

7. Here are the approximate populations of three cities in the United States, expressed in scientific notation: San Jose: 1.1×10^6; Washington: 7×10^5; Atlanta: 4.8×10^5.

   a. Lin says that about 6.2×10^5 more people live in San Jose than in Atlanta. Do you agree with her? Explain your reasoning.

   b. Decide what power of 10 to put on the labeled tick mark on this number line so that all three countries' populations can be distinguished.



   c. Label each tick mark as a multiple of a power of 10.

   d. Plot and label the three cities' populations on the number line.

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