**GUÍA DE MATEMÁTICA**

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| NOMBRE: |  | | |
| CURSO: | 8° Básico | FECHA: | Semana 13 |
| **OBJETIVO:** **OA 5 (7°)** Utilizar potencias de base 10 con exponente natural:  > Usando los términos potencia, base, exponente, elevado.  > Definiendo y usando el exponente 0 en el sistema decimal.  > Expresando números naturales en notación científica (sistema decimal).  > Resolviendo problemas, usando la notación científica. | | | |
| **Contenido:** Potencias | | | |
| **Objetivo de la semana:** Demostrar comprensión del concepto de potencia y su resolución, resolviendo ejercicios en guía. | | | |
| **Habilidad:** Representar. | | | |

**Instrucciones**

Estimados alumnos y alumnas: En la siguiente guía de trabajo, deberán desarrollar las actividades planeadas para la clase que ha sido suspendida por prevención. Las instrucciones están dadas en cada ítem.

**¡Éxito!**

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| **Representar** es expresar simbólicamente una situación.  **Potencias** son representaciones de una multiplicación iterada (que se repite).  **Composición y descomposición de números con multiplicación de potencias de base 10.**  Antes de comenzar con la descomposición utilizando potencias de base 10. Recordaremos ejemplos de tipos de descomposición que se pueden hacer.  Descomposición Canónica:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | | 5 | 3. | 5 | 7 | 9. | 4 | 3 | 8 | | 5Dmill+3Umill+5CM + 7DM + 9UM + 4C + 3D + 8U | | | | | | | |   Descomposición aditiva:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | | 5 | 3. | 5 | 7 | 9. | 4 | 3 | 8 | | 50.000.000+3.000.000 + 500.000. + 70.000. + 9.000 + 400 + 30 + 8 | | | | | | | |   Descomposición multiplicativa:   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | | 5 | 3. | 5 | 7 | 9. | 4 | 3 | 8 | | 5 · 10.000.000 + 3 · 1.000.000 + 5 · 100.000 + 7 · 10.000 + 9 · 1.000 + 4 · 100 + 3 · 10 + 8 · 1 | | | | | | | |   Si te das cuenta, en los ejemplos anteriores descompusimos el número 53.579.438 de distintas formas hasta que llegamos a la **descomposición multiplicativa.**  Para hacer la **descomposicón con potecias de base 10**. A la descomposición multiplicativa, le transformamos el valor posicional en una potencia de base 10 (1,10,100,1.000…). Entonces dicho número se representa como potencia.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | | 5 | 3. | 5 | 7 | 9. | 4 | 3 | 8 | | 5 · **10.000.000** | + 3 · **1.000.000** | + 5 · **100.000** | + 7 · **10.000** | + 9 · **1.000** | + 4 ·**100** | + 3 · **10** | + 8 · **1** | | ++ 9 ·+ 4 ·+ 3 **·** + 8 · | | | | | | | |   Entonces:  Para descomponer aditivamente un número utilizando potencias de base 10, se debe escribir cada valor posicional como una potencia de base 10 y multiplicarla por la cifra correspondiente.  Debes tener en cuenta el valor de cada potencia según su valor posicional    **Toda potencia elevada a 1 es el mismo número**  **Toda potencia elevada a 0 es 1**  **Para descomponer con potencias de base 10 debemos:**  Empezar a descomponer **de izquierda a derecha desde el valor posicional menor**. No es necesario descomponer los valores posicionales que contienen el cero.  Ejemplo:  Vamos a descomponer el siguiente número: **3.478.094**  **Paso 1:** En una primera insatncia vamos a escribir el número en una tabla de valor posicional. Cuando sientas más confianza, puedes omitir este paso.   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 |   **Paso 2:** empezamos a descomponer desde la unidad y asi sucesivamente (De izquierda a derecha).   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  |  |  |  |  |  |  | 4 · |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  |  |  |  |  |  | 9 · | 4 · |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  |  |  |  | 8 · | No es necesario | 9 · | 4 · |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  |  |  | 7 · | 8 · | No es necesario | 9 · | 4 · |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  |  | 4 · | 7 · | 8 · | No es necesario | 9 · | 4 · |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | DMi | UMi | CM | DM | UM | C | D | U | |  | 3. | 4 | 7 | 8. | 0 | 9 | 4 | |  | 3 · | 4 · | 7 · | 8 · | No es necesario | 9 · | 4 · |   **Paso 3:** Anotamos la descomposición como una suma.  3 · + 4 · + 7 · + 8 · + 9 · + 4 · | |
| **Descompone los siguientes números como potencias de base 10:** | | | |
| 2.567.043 | | 34.980.675 | |
| 654.798 | | 325.876.967 | |
| 205.780.470 | | 6.007.045 | |
| **Para componer números, debes hacer el proceso inverso. Es decir, la descomposición dejarla como número natural.**  Ejemplo:  Componer 4 · + 7 · + 9 · + 3 · + 8 · + 2 ·  **Paso 1:** Debes empezar resolviendo cada descomposición de izquierda a derecha. Debes fijarte en el exponente de la potencia, ya que éste te indicará el valor de ésta (1,10,100,1.000...).  2 ·= 2  8 ·= 800  3 ·= 3.000  9 ·= 90.000  7 ·= 700.000  4 ·= 4.000.000  **Paso 2:** Sumar de forma ordenada para saber el número que se forma.   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | |  |  |  |  |  |  | 2 | |  |  |  |  | 8 | 0 | 0 | |  |  |  | 3. | 0 | 0 | 0 | | **+** |  | 9 | 0. | 0 | 0 | 0 | |  | 7 | 0 | 0. | 0 | 0 | 0 | | 4. | 0 | 0 | 0. | 0 | 0 | 0 | | 4. | 7 | 9 | 3. | 8 | 0 | 2 |   Finalmente tenemos 4.793.802 | | | |
| **Compone como número natural** | | | |
| 3 · + 6 · + 8 · + 2 · + 7 · + 9 · | | 5 · + 6 · + 8 · + 4 · + 9 · + 3 · | |
| 2 · + 5 · + 7 · + 9 · + 6 · + 8 · | | 9 · + 4 · + 6 · + 3 · + 5 · + 2 · | |
| 8 · + 2 · + 9 · + 7 · + 3 · + 6 · | | 9 · + 3 · + 6 · + 8 · + 5 · + 7 · | |
| **Responde las asiguientes preguntas relacionadas con lo realizado en la guía:** | | | |
| ¿Qué es una potencia de base 10?  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  ¿Cómo se descompone un número con potencias de base 10? **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  ¿Qué pasos hay que seguir para componer un número?  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
| **Actividad complementaria:** Desarrolla las actividades del día 11 del cuaderno de ejercicios entregado. | | | |