**CHECK YOUR UNDERSTANDING QUESTIONS**

*Before you start, circle 3 questions that you think are most important for helping your learning. The answer key is on Mrs. Tennant’s website.*

1. Which numbers are perfect cube numbers? Use prime factorization to support your answer. If a number is a perfect cube, what is it’s cube root?

| 1. 216   / \  **2** x 108  / \  **2** x 54  / \  **2** x 27  / \  **3** x 9  / \  **3**x**3**  2 x 2 x 2 x 3 x 3 x 3  (2x3) x (2x3) x (2x3)  6 x 6 x 6  =  = = 6  216 is a perfect cube number because it can be split into three equal groups of prime factors. Each group has a product of 6. Therefore, the cube root of 216 is 6. | 1. 25   / \  **5** x **5**  25 is not a perfect cube number because it’s prime factors cannot form three equal groupings. | 1. 27   / \  **3** x 9  / \  **3** x **3**  3 x 3 x 3  =  = = 3  27 is a perfect cube number because it can be sorted into three equal groups of prime factors. Each group equals 3. Therefore, the cube root of 27 is 3. |
| --- | --- | --- |

1. In the blank space between each pair of numbers, write whether the first number is equal to (=), greater than (>) or less than (<) the second number. Circle any perfect cube numbers.

| 43 > 16 | 53 = 125 | 73 > 82 |
| --- | --- | --- |

1. Find the following cube roots, show your work and explain the strategy that you used:

| 1. 64   / \  **2** x 32  / \  **2** x 16  / \  **2** x 8  / \  **2** x 4  / \  **2** x **2**  2 x 2 x 2 x 2 x 2 x 2  (2 x 2) x (2 x 2) x (2 x 2)  4 x 4 x 4  = 64    = =  = 4  I know that the cube root of 64 is 4 because I used prime factorization and saw that the prime factors of 64 can be split into three equal groups. The product of each group is 4. Therefore 4 multiplied by itself twice equals 64. | 1. 343   / \  **7** x 49  / \  **7** x **7**  7 x 7 x 7 =  = 7  I know that the cube root of 343 is 7 because when I used prime factorization, I saw that I could sort the prime factors of 343 into 3 equal groups. Each group is equal to 7. | = 9  I know that if I cubed 9 and then found the cube root I would end up back at 9 because cubing and finding the cube root are inverse operations. |
| --- | --- | --- |
|  |  |  |