Practice Problems for Exponents, Roots, and Logarithms
from www.topmath.info

1 What is the cube root of 29,791?

2 The logarithm base 4 of 65 is closest to what integer?

3 At the beginning of a week, Lisa has some money. Every day, Lisa spends money in such
   a way that there is only 1/4 of the previous day's amount left. After doing this for 3 days,
   Lisa has $2.50 remaining. How much did Lisa have at the beginning?

4 Let x > 0. If sqrt(x)/(x^6) = x^y, what is y?

5 What is 5 cubed?

6 What is 26 cubed?

7 What can x be, if $x^2 - 81 = 0$?

8 What can x be, if $x^4 - 256 = 0$?

9 A number, q, has 4 subtracted from it to produce a second number. The cube root of the second number is -0.8. What is q?

10 A number, s, has 19 subtracted from it to produce a second number. The fifth root of the second number is -0.2. What is s?

11 A number, x, has 17 subtracted from it to produce a second number. The cube root of the second number is 0.3. What is x?

12 A number, y, has 16 subtracted from it to produce a second number. The fifth root of the second number is 0.4. What is y?

13 What is the square root of 16?

14 What is the cube root of 27?

15 What is the cube root of 4,913?

1 ANSWER: 110592

2 ANSWER: 3. EXPLANATION: Note that 4^3 = 64, and no other integer power of 4 is anywhere near as close to 65.

3 ANSWER: $160.00. EXPLANATION: Work the problem backward from the end of the time period. Start with the ending value of $2.50, and multiply by 4 a total of 3 times. Since 4^3 is 64, you can simply multiply $2.50 by 64 to obtain the answer.

4 ANSWER: -5.5. EXPLANATION: The square root of x is x^(1/2). You divide powers by subtraction, so the answer is 1/2 - 6.

5 ANSWER: 125

6 ANSWER: 17576

7 ANSWER: -9 or 9. EXPLANATION: Remember that both negative numbers and positive numbers have positive squares."

8 ANSWER: -4 or 4. EXPLANATION: The fourth root of a number is the square root of the square root of the number. The square root of 256 is 16, and the square root of 16 is 4. Since the exponent (4) is even, both the positive and negative roots are correct answers.

9 ANSWER: 3.488. EXPLANATION: The second number is -0.8 cubed, or -0.512. This is 4 less than q, so we add to get the answer.

10 ANSWER: 18.99968. EXPLANATION: The second number is -0.2 to the fifth power, or -0.00032. This is 19 less than s, so we add to get the answer.

11 ANSWER: 17.027. EXPLANATION: The second number is 0.3 cubed, or 0.027. This is 17 less than x, so we add to get the answer.

12 ANSWER: 16.01024. EXPLANATION: The second number is 0.4 to the fifth power, or 0.01024. This is 16 less than y, so we add to get the answer.

13 ANSWER: 64

14 ANSWER: 1000

15 ANSWER: 46656