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

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

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

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

4 A number, x, has 6 subtracted from it to produce a second number. The fifth root of the second number is -0.4. What is x?

5 A number, q, has 14 subtracted from it to produce a second number. The cube root of the second number is 0.2. What is q?

6 A number, t, has 18 subtracted from it to produce a second number. The fifth root of the second number is 0.2. What is t?

7 What is the square root of 100?

8 What is the cube root of 216?

9 What is the cube root of 21,952?

10 The logarithm base 3 of 23 is closest to what integer?

11 At the beginning of a week, Lisa has some money. Every day, Lisa spends money in such a way that there is only 1/2 of the previous day's amount left. After doing this for 5 days, Lisa has $2.00 remaining. How much did Lisa have at the beginning?

12 Let x > 0. If sqrt(x)/(x^3) = x^y, what is y?

13 What is 4 cubed?

14 What is 27 cubed?

15 What can x be, if x^2 - 0 = 0?

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

2 ANSWER: -0 or 0. EXPLANATION: The fourth root of a number is the square root of the square root of the number. The square root of 0 is 0, and the square root of 0 is 0. Since the exponent (4) is even, both the positive and negative roots are correct answers.

3 ANSWER: 16.973. EXPLANATION: The second number is -0.3 cubed, or -0.027. This is 17 less than t, so we add to get the answer.

4 ANSWER: 5.98976. EXPLANATION: The second number is -0.4 to the fifth power, or -0.01024. This is 6 less than x, so we add to get the answer.

5 ANSWER: 14.008. EXPLANATION: The second number is 0.2 cubed, or 0.008. This is 14 less than q, so we add to get the answer.

6 ANSWER: 18.00032. EXPLANATION: The second number is 0.2 to the fifth power, or 0.00032. This is 18 less than t, so we add to get the answer.

7 ANSWER: 121

8 ANSWER: 1728

9 ANSWER: 110592

10 ANSWER: 3. EXPLANATION: Note that 3^3 = 27, and no other integer power of 3 is anywhere near as close to 23.

11 ANSWER: $64.00. EXPLANATION: Work the problem backward from the end of the time period. Start with the ending value of $2.00, and multiply by 2 a total of 5 times. Since 2^5 is 32, you can simply multiply $2.00 by 32 to obtain the answer.

12 ANSWER: -2.5. EXPLANATION: The square root of x is x^(1/2). You divide powers by subtraction, so the answer is 1/2 - 3.

13 ANSWER: 64

14 ANSWER: 19683

15 ANSWER: -0 or 0. EXPLANATION: Remember that both negative numbers and positive numbers have positive squares."