**Exponents and Radicals**: You know that the appropriate radical will "undo" an exponent, and the right power will "undo" a root. For example:

|  |  |  |
| --- | --- | --- |
|  | OR |  |

For the square (or "second") root, we can write it as the one-half power, like this:9-2009 All Rights Reserved



The cube (or "third") root is the one-third power:



The fourth root is the one-fourth power and so on.

**RULE 5: Whenever you have a radical expression you can write the equivalent rational exponent expression.**

Specifically, OR In General:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|

|  |  |
| --- | --- |
|  |  |
| **Notice:**   The root becomes the denominator and the exponent becomes the numerator.Examples: |
|  (1)    http://www.regentsprep.org/Regents/mathb/3B1/RatPo5.gif | (2)    http://www.regentsprep.org/Regents/mathb/3B1/RatPo6.gif | (3)    http://www.regentsprep.org/Regents/mathb/3B1/RatPo7.gif |

The Rules of Exponents are still valid for rational exponents!!!

|  |  |
| --- | --- |
| **Rule** | **Example** |
|  | http://www.regentsprep.org/Regents/mathb/3B1/RatPo9.gif |
|  | http://www.regentsprep.org/Regents/mathb/3B1/RatPo11.gif |
|  | http://www.regentsprep.org/Regents/mathb/3B1/RatPow1.gif |

 |

**Rewrite and simplify the following expressions in rational exponent form.**

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Solve for x. Round answers to 2 decimal places if necessary.**

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |