**4.4 Irrational Numbers**

Goals

* Representing, identifying, and simplifying irrational numbers
* Converting between powers with rational exponents and radicals
* Converting between mixed radicals and entire radicals
* Solving problems using radicals

Vocabulary

1. Irrational Number
2. Radical
3. Radicand
4. Index
5. Mixed Radical
6. Entire Radical

Notes

Powers with fractional exponents can be written as radicals in the form of

For example, (31/2) (31/2) =

Now: (√3) (√3) =

A power can be expressed as a radical in the form

Examples

1. Express each power as an equivalent radical
   1. 641/2
   2. 163/4
   3. (8x2)1/3
2. Express each radical as a power with a rational exponent
   1. 4

43

* 1. 5

34

s3

1. Express each mixed radical as an equivalent entire radical
   1. 5√11
   2. 2 3 5
   3. 1.5 3 6
2. Express each entire radical as an equivalent mixed radical
   1. 27
   2. 50
   3. 48
   4. 4 80
3. Order these irrational numbers from least to greatest

2√18 √8 3√2 √32

1. The Seabee Mine is located at Laonil Lake, SK. In 2007, the mine produced a dialy average of gold great enough to fill a cube with a volume of 180 cm3. If five days of gold production is cast into a cube, what is the edge length?

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