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| **Multiplying Radical Expressions (7.3)** | **Math 098** |

Examine

|  |  |
| --- | --- |
| 1. vs.
 | 1. vs.
 |
|  |  |

Definition: (The product rule for radicals) For any real numbers  and , we have  That is, the product of two *n*th roots is the *n*th root of the product of the two radicands.

Multiply

|  |  |
| --- | --- |
| 1.

 | 1.

 |
| 1.
 | 1.
 |
|  |  |

Method: Using the product rule to simplify

 where  and  are both real numbers

Simplify  (The Jail Story)

Method: To simplify a radical expression with index *n* by factoring

1. Express the radicand as a product in which one factor is the largest perfect *n*th power possible.
2. Take the *n*th root of each factor.
3. Simplification is complete when no radicand has a factor that is a perfect *n*th power.

 Simplify

|  |  |
| --- | --- |
| 1.

 | 1.
 |
| 1.
 | 1.
 |
|  |  |

|  |  |
| --- | --- |
| 1.
 | 1.
 |
| 1.
 | 1.
 |
|  |  |

You try to simplify 

Simplify 

Multiply and simplify

1. 
2. 
3. 