***RECALL: CONDITIONS***

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| --- |
| * m is an integer

$$a^{\frac{m}{n}}=\sqrt[n]{a^{m}}=(\sqrt[n]{a})^{m}$$* n is a natural number (integer greater than 0)
* a is greater than or equal to 0 if m is even
* ***Radical*** means there is a root
* ***Rational*** means there is an exponent in fraction form
 |

**EVALUATING POWERS WITH RATIONAL EXPONENTS**

***EXAMPLE 1*** Rewrite each expression in radical form and then evaluate without a calculator.

|  |  |  |
| --- | --- | --- |
| **a)**  | **b)**  | **c)**  |

**SOLVING FOR THE BASE IN A POWER**

Rational exponents are useful for solving equations involving powers. For example, take both sides of the equation x3 = 8 to the exponent 1/3 to find the solution x =2.

**EXAMPLE 2**: Solve for the unknown variable, *x*.

|  |  |  |
| --- | --- | --- |
| **a)**  | **b)** $x^{\frac{3}{2}}=27$ | **c)**  |

**SOLVING A FINANCIAL PROBLEM**

**EXAMPLE 3**: Under annual compounding, an initial investment of $700 grows to $900 in 5 years. Determine the annual interest rate, *i*, using the compound interest formula *A* = *P*(1 + *i*)*n*.