## Exam 6 Review

Note: This is not a complete list of topics – you should study your lecture notes and homework in addition to reviewing the items listed here.

- 1. vocabulary
  - a. radical
  - b. radicand
  - c. index
  - d. rationalize
  - e. conjugate
- 2. evaluating roots and radicals
  - a.  $\sqrt[n]{a}$  is the number *b* such that  $b^n = a$
  - b.  $\sqrt{a^2} = |a|$

c. 
$$a^{\frac{m}{n}} = \sqrt[n]{a}^{n}$$

- 3. radicals are *simplified* when...
  - a. no radicand contains a perfect power and all exponents are less than the index
  - b. no radicand contains a fraction
  - c. no radicals appear in any denominator
- 4. adding and subtracting radicals combine "like radicals"
- 5. multiplying radicals index must be the same
- 6. dividing radicals rationalize the denominator
  - multiply the numerator and denominator by a radical that will result in the radicand being a perfect power
- 7. solving radical equations
  - i. isolate the radical
  - ii. raise both sides of the equation to a power equal to the index of the radical
  - iii. simplify by combining like terms
  - iv. if the equation still contains a radical, repeat steps i-iii
  - v. solve the equation
  - vi. <u>check</u> in the original equation
- 8. complex numbers
  - a.  $i = \sqrt{-1}$
  - b. complex numbers are of the form a + bi
  - c. adding combine like terms
  - d. multiplying change to a + bi form first
  - e. dividing multiply numerator and denominator by the conjugate