Topics covered for Exam Three Math 1643

1) **Quadratic Functions**
   a) **Find vertex or minimum y-value or maximum y-value**
   b) **Find equation of quadratic given vertex and another point**
2) **Polynomials**
   a) **Determine if it is a polynomial or not**
   b) **Find the degree and leading coefficient**
   c) **Find the y-intercept of the polynomial**
   d) **Find the multiplicity of a given zero**
   e) **Describe the end behavior of the graph**
   f) **Understand the Intermediate Value Theorem**
3) **Rational Functions**
   a) **X – intercept(s)**
   b) **Y – intercept(s)**
   c) **Horizontal asymptote**
   d) **Vertical asymptote(s)**
   e) **Constructing a rational function given certain information**
4) **Variation**
   a) **Direct**
   b) **Inverse**
   c) **Joint**
   d) **Writing equations and / or solving for a numerical answer**
5) **Exponentials**
   a) **Convert to logarithms**
   b) **Find x- and y-intercepts**
   c) **Find horizontal asymptote**
   d) **Evaluate an exponential expression**
   e) **Solve equations of the form** $4^{n+1} = 8^{5-2n}$
   f) **Use** $A = P\left(1 + \frac{r}{n}\right)^{nt}$ **and** $A = P e^{rt}$ **[formulas will be given on exam]**
6) **Logarithms**
   a) **Convert to exponential**
   b) **Using the properties of logarithms**
   c) **Expanding a logarithm**
   d) **Writing as a single logarithm**
   e) **Find the domain of a logarithmic function**
   f) **Evaluating logarithmic expressions**
   g) **Find the vertical asymptote**
   h) **Solve simple equations, such as** $\log(3x - 1) = 2$