This review, produced by the Broward Teaching Center, contains a collection of questions which are representative of the type you may encounter on the exam. Other resources made available by the Teaching Center include:

- Walk-In tutoring at Broward Hall
- Private-Appointment, one-on-one tutoring at Broward Hall
- Walk-In tutoring in LIT 215
- Supplemental Instruction
- Video resources for Math and Science classes at UF
- Written exam reviews and copies of previous exams

The teaching center is located in the basement of Broward Hall:

You can learn more about the services offered by the teaching center by visiting https://teachingcenter.ufl.edu/
1. (a) Solve: $\sqrt{4x + 21} = x$
(b) Solve: $x^2 - 2x - 15 = 0$

2. Solve the following equations.
   a) $x^2 - 2x - 48 = 0$
   b) $x^2 - 3x - 10 = 0$
   c) $x^2 + x - 6 = 0$

3. Solve the following equations.
   A. $x^2 + 3x - 9 = 0$
   B. $x^2 - 10x + 61 = 0$
   C. $\frac{-5}{x-8} + \frac{8}{x+8} = \frac{-80}{x^2 - 64}$

4. Write the equation of parabola with vertex $(-3,2)$ and going through the point $(1,34)$.

5. Graph the following quadratic functions:
   (a) $f(x) = (x + 4)(x + 1)$
   (b) $f(x) = (x - 3)^2 + 1$

6. Solve each equation and check your answers:
   a) $\sqrt{2x + 5} + 3 = 0$  
   b) $x = \sqrt{15 - 2x}$  
   c) $\sqrt{2x + 3} - \sqrt{x + 2} = 2$
7. Find the domain of the following functions:

(a) \( f(x) = \sqrt{19 - x} \)

(b) \( f(x) = \frac{\sqrt{x+5}}{(x+8)(x-9)} \)

(c) \( f(x) = \frac{x}{x-7} \)

8. Solve the following equations:

(a) \( \sqrt{x + 4} = x - 4 \)

(b) \( \sqrt{x + 7} + 5 = x \)

9. Find a polynomial of degree 3 with real coefficients that satisfies the given conditions.

(a) Zeros of -2, 1, 0 and \( p(2) = 16 \).

(b) Zeros of -1, 1, 2 and \( p(0) = 10 \).

10. Determine the end behavior for the following polynomial functions:

(a) \( f(x) = -5x^3 + 3x - 2 \)

(b) \( g(x) = x^3 - 10x^6 + 12 \)

(c) \( h(x) = 3(x - 1)^3x^2 \)

11. Using the following sign chart (polynomial function with three zeroes), determine whether the leading coefficient is negative or positive, if the function is even or odd, and what the minimum degree is.

\[
\begin{array}{ccc}
- & + & - \\
\end{array}
\]

12. Write the equation for a polynomial function \( f(x) \) with integer coefficients that has the given roots:

(a) -1, 2, 3

(b) 1, 2i, -2i

(c) -2, 4, 1-i, 1+i
13. Solve the following equations:
   a) \(3^{x-2} = 81\)                                      f) \(\ln x - \ln 3 = 4\)
b) \(2^x = 64\)                                          g) \(\log_2 2x = \log_2 100\)
c) \(4^{x-3} = \frac{1}{16}\)                                h) \(\log_3 (2x + 1) = 2\)
d) \(\log_4 x = 3\)                                        i) \(\log_7 3 + \log_7 x = \log_7 32\)
e) \(\ln(x + 4) = \ln 7\)                                  j) \(2 \log_4 x - \log_4 (x - 1) = 1\)

14. Graph the following functions:
   a) \(f(x) = 3^x\)                                         b) \(g(x) = (\frac{1}{3})^x\)

   c) \(f(x) = \log_3 x\)                                    d) \(g(x) = \log_{\frac{1}{3}} x\)

15. Convert the following logarithms into an exponential function to solve for \(x\):
   a. \(\log_3 x = 2\)                                       d. \(\log_4 x = 3\)
b. \(\log_5 x = 4\)                                        e. \(\log_1 x = 8\)
c. \(\log_6 x = 1\)                                        f. \(\log_7 x = 0\)