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. Answer the following true or false questions. If false, provide an example to show why it is false.

Let \(a, b,\) and \(c\) be Real numbers.

A. **Closure:** \(a + b, a - b, ab, \frac{a}{b}\) are all Real numbers.

B. **Associative:** \((a + b) + c = a + (b + c)\)

C. **Distributive:** \(a(b - c) = ab - ac\) for all Real numbers \(a, b,\) and \(c.\)

D. **Inverse:** \(a \cdot \frac{1}{a} = 1\) for all Real numbers \(a.\)

E. **Commutative:** \(a - b = b - a\)

2. State the **smallest** set (natural, whole, integer, etc) the following real numbers belong to:

A. \(-\frac{21}{7}\)

B. \(-\frac{0}{\pi}\)

C. \(-\frac{\pi}{0}\)

D. \(\sqrt{9}\)

E. \(\sqrt{3}\)

F. \(2.757575....\)

G. \(17/25\)

3. Identify the following complex numbers as pure imaginary or nonreal complex:

a) \(7 - i\)

b) \(3 + 2i\)

c) \(4 + 2i\)

d) \(-2 - 3i\)

e) \(7i\)

f) \(-2i\)

g) \(-5 + 4i\)
4. **Simplify:**
   a) $i^{40}$
   b) $i^{22}$
   c) $i^7$
   d) $i^{102}$
   e) $i^{57}$
   f) $i^{120}$

5. **Simplify:**
   a) $(4 + 7i) + (2 + 3i)$
   b) $(5 + 6i) + (7 – 3i)$
   c) $(4 + 7i) – (2 + 3i)$
   d) $(5 + 6i) – (7 – 3i)$

6. Factor the following trinomials completely, if possible.
   a) $x^2 – 2x – 48$
   b) $x^2 + 2xy – 15y^2$
   c) $5x^3 + 5x^2y – 30xy^2$

7. Solve the following equations.
   A. $\frac{6x - 5}{2} - \frac{3x + 5}{3} = \frac{6x + 7}{6}$
   B. $-15(4x - 2) = -11(7x - 6)$
   C. $\frac{5x + 8}{6} - \frac{6x - 8}{4} = \frac{-4x - 6}{3}$
   D. $-5[-3x - 3 - 6(x + 1)] = -5x + 2$

8. Solve the following equations.
   a) $4x + 1 = 2x + 7$
   b) $3x + 5 = x + 15$
   c) $6x + 7 = 5x + 13$
   d) $10x - 6 = 7x + 9$
   e) $5x - 1 = 2x + 11$
   f) $6x - 1 = x + 19$
   g) $12x - 4 = 8x + 24$
   h) $10x - 1 = 8x + 6$
   i) $4x + 4 = 2x + 12$
   j) $6x + 3 = 2x + 10$
9. Solve the inequality.
\[-7 - 11x - 3 \geq -12x - 4\]

10. Solve the following inequalities.

a) \[0 > 3x - 3 - 6\]

b) \[-1 \leq 2n + 4 - 5\]

c) \[7 < -(k - 3) + 2\]

d) \[-5(1 - 4a) > -5\]

e) \[4x + 1 - 1 \geq -8\]

f) \[-6 > 5n + 5 + 4\]

g) \[2p - 4p \leq -2\]

h) \[3 - 2(n - 4) > -1\]

11. Determine the slope and y-intercept of the line represented by each equation.

A. \[y = 2x - 4\]

B. \[-2x + y = 5\]

12. Find the equation of the line containing the two points below. Write the equation as \[y = mx + b\].

\[(7, 3) \text{ and } (2, 2)\]