Scores on the Calculus Readiness Test may qualify students for Math 43, or Calculus Math 1A. This test is a 30 problem 1 hour multiple choice test. Use of calculator is not permitted.

The following is a list of skills covered in the test. This list is intended as a guideline only.

- Trigonometric functions
  - identities
  - conditional statements
  - inverse
  - graphs
  - practical applications
- Vectors in two-dimensional space
- Functions – numerical, graphical and symbolic representation
- Finding roots of functions symbolically and numerically
- Domain and range of functions
- Exponential/logarithmic functions – growth/decay applied
- Operations with functions to include composition & inverse
- Graph features: increasing, decreasing, root representations
- Systems of equations and inequalities
- Arithmetic and Geometric sequences and series

**SAMPLE QUESTIONS**

1. Consider \( f(x) = \frac{x + 1}{(x - 1)^2} \). For the graph of \( f(x) \):
   a) \( y = 1 \) is a horizontal asymptote
   b) \( x = 1 \) is a vertical asymptote
   c) \( x = -1 \) is a horizontal asymptote
   d) \( y = 1 \) is a vertical asymptote
   e) \( x = 1 \) is a horizontal asymptote

2. An equation of the line passing through \((-1, 2)\) and parallel to \(2x - 3y = 4\) is
   a) \(2x - 3y = -8\)
   b) \(3x - 2y = -7\)
   c) \(2x + 3y = 4\)
   d) \(2x - 3y = 4\)
   e) \(2x - y = -4\)
3. \( \log y = 2 \log (x + 1) - \frac{1}{2} \log x - 3 \log (x + 2) \quad y = \)

a) \( \frac{\log (x + 1)^2 (x + 2)^3}{x^{1/2}} \)  

b) \( (x + 1)^2 - x^{1/2} - (x + 2)^3 \)

c) \( \log \frac{(x + 1)^2}{x^{1/2} + (x + 2)^3} \)  

d) \( \frac{(x + 1)^2 (x + 2)^3}{x^{1/2}} \)  

e) \( \frac{(x + 1)^2}{x^{1/2} (x + 2)^3} \)

4. 

In the triangle on the left, \( \csc A \cdot \cot B = \)

a) \( \frac{4}{\sqrt{16 - x^2}} \)  

b) \( \frac{4}{\sqrt{16 + x^2}} \)  

c) \( \frac{16 - x^2}{4x} \)  

d) \( \frac{4\sqrt{16 - x^2}}{x^2} \)  

e) \( \frac{4x}{16 - x^2} \)

5. Consider the polar coordinate equation given by \( r = 5 \sin (\phi) \). The corresponding equation, in rectangular coordinates, is given by:

a) \( \sin(x) + \cos(y) = 5 \)  

b) \( x^2 + y^2 = 25 \)

c) \( x^2 + 5x + y^2 = 0 \)  

d) \( x^2 + y^2 - 5y = 0 \)

e) \( \sqrt{x + y} = 5 \)

**ANSWERS:**

1. b  
2. a  
3. e  
4. a  
5. d