

CALCULUS READINESS TEST – SAMPLE QUESTIONS

Scores on the Calculus Readiness Test may qualify students for Math 49A, 49B 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

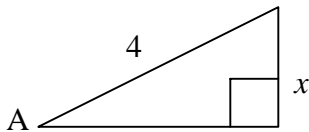
- a) $2x - 3y = -8$
- b) $3x - 2y = -7$
- c) $2x + 3y = 4$
- d) $2x - 3y = 4$
- e) $2x - y = -4$

3. $\log y = 2 \log (x+1) - \frac{1}{2} \log x - 3 \log (x+2)$ $y =$

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