

## Pretest for Calculus II

Answer the following ten elementary questions from Calculus I and algebra. Write your answer on a separate sheet of paper and show your work. You should not use a calculator to answer these questions. Allow 15 minutes for this pretest.

If you are not able to answer 8 of these questions correctly, you may have difficulty with Calculus II. Doing well on this quiz does not guarantee success in Calculus II.

1. Write as a single fraction and simplify.

$$\frac{x}{x-2} + \frac{x}{x+2}.$$

2. Solve for  $x$ . Give exact answers.

$$x^2 + x - 3 = 0.$$

3. Determine if the following limit exists and if the limit exists, compute its value.

$$\lim_{h \rightarrow 1} \frac{h-1}{h^2-1}.$$

4. Find the derivative,  $f'(x)$  if

$$f(x) = (2x+1)^5.$$

5. Find the derivative  $f'(x)$  if

$$f(x) = \cos(x^2+1).$$

6. Find the derivative  $f'(x)$  if

$$f(x) = \frac{x+1}{x-1}.$$

Simplify your answer.

7. Evaluate the integral

$$\int_0^1 x^{1/3} dx.$$

8. Evaluate the integral

$$\int_0^{\pi/2} \cos(2x) dx.$$

9. Sketch the graph of  $f(t) = |t-1|$  and use your graph to evaluate the integral

$$\int_0^1 |t-1| dt.$$

10. Suppose that we have 150 feet of fence which we use to make a rectangular pen. If we let  $x$  be one side of the pen, write a function  $A(x)$  which gives the area of the pen as a function of  $x$ .