

MA 125 Test 4a

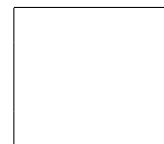
NAME : \_\_\_\_\_

Class No. \_\_\_\_\_

1. Calculate the limit of each function, provide a detailed calculation to get full credit. Write your final answer in the box.

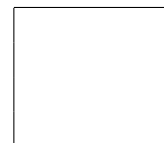
(1).

$$\lim_{x \rightarrow 11} \frac{\sqrt{x+3} - 4}{x - 11}$$



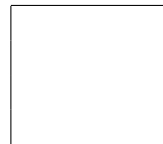
(2).

$$\lim_{x \rightarrow \pi/6} \frac{\sin x - 1/2}{x - \pi/6}$$



(3)

$$\lim_{x \rightarrow 0} \frac{x}{\ln(x+1)}$$



(4)

$$\lim_{x \rightarrow 0} 2x \ln x$$



2. Find all antiderivatives of the following functions.

(1)  $f(x) = \csc x \cot x + \sec^2 x$



(2)  $f(x) = (x + 2)(x - 1)$

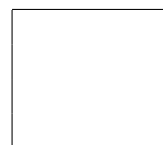


**3.**(10 pts) Evaluate the following definite integrals.

**c)**  $\int_1^2 (3e^x + \sqrt{x} + 3 \sin x) dx$



**b)**  $\int_0^3 \frac{x^2 - 3\sqrt{x^3}}{\sqrt{x}} dx$



**c)**  $\int_2^1 (\sqrt{x})^5 dx$



6

1