

King Fahd Univ. of Petroleum and Minerals
Faculty of Sciences
Department of Mathematical Sciences

MAJOR No. 3
(MATH. 102-043 Sections 1 & 2)

Name:

ID:

Prob. 1

Calculate $\int \csc^6 x dx$

Prob. 2

Find $\int \frac{\sqrt{9-x^2}}{x^2} dx$

Prob. 3

Find $\int \frac{dv}{v^3\sqrt{v^2-9}}$

Prob. 4

Compute $\int \frac{dt}{t^2-16}$

Prob. 5

Compute $\int_{-\infty}^{+\infty} \frac{du}{u^2+6u+12}$

Prob. 6

Find $\int_1^{+\infty} \frac{dx}{x\sqrt{x^2-1}}$

Prob. 7

Compute $\int \frac{dz}{\sqrt{z^2+8z+25}}$

Prob. 8

Find $\int \frac{w^3 dw}{\sqrt{9+w^2}}$

Prob. 9

Find (a) $\int \frac{(x^2+2x-3)dx}{x^3(x+3)^3(x+1)^2}$

(b) $\int \frac{t^4+t^3-t-1}{(t^2+t+1)(t+1)} dt$

Prob. 10

Find (a) $\int \frac{(3s^4-2)ds}{(s-1)(6s^2+5s-4)^3}$

(b) $\int \frac{r^6+r^4-r}{r^5(r^2+3r+4)}dr$