Calculus II
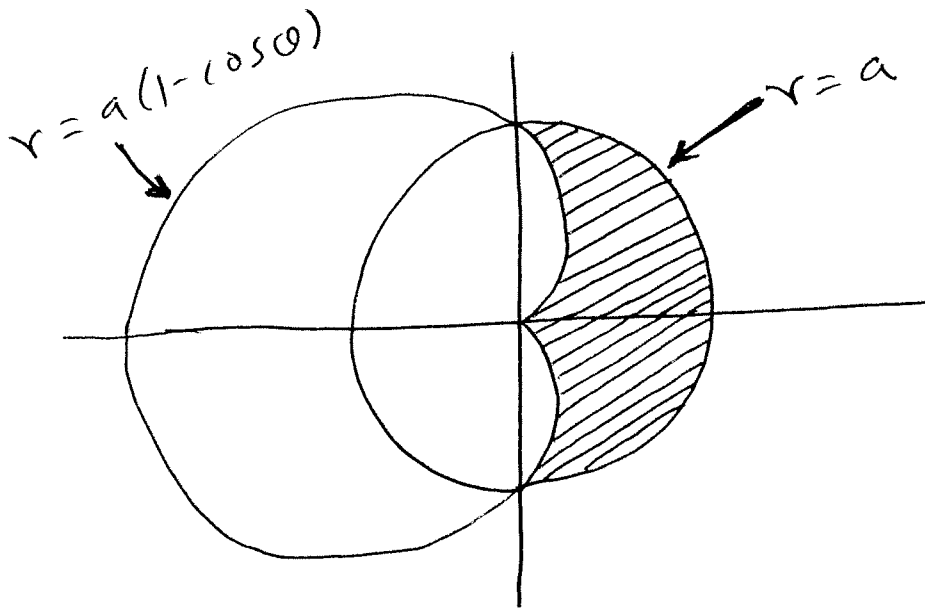
Midterm - II

Name :—

① Find the area that is inside the circle $r = a$ and outside the cardiod $r = a(1 - \cos\theta)$

$r = a(1 - \cos\theta)$

$r = a$

② Calculate the indefinite integral:

$$\int \cos^{2/3} x \, \sin^3 x \, dx$$

③ Calculate the indefinite integral

$$\int \frac{x+1}{\sqrt{4-x^2}}\, dx \, .$$

(4) Obtain the partial fraction expansion of

$$\frac{x}{x^2 + 4x - 5} = \frac{A}{x + \alpha} + \frac{B}{x + \beta}.$$

(5) calculate

$$\int x^2 \sin x \, dx$$

using integration by parts .