

**Calculus I Review Test III**

1.  $\int \tan^8 4x \sec^6 4x \, dx$

2.  $\int \frac{dx}{x\sqrt{4x^2 + 9}}$

3.  $\int x \arcsin x \, dx$

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

5.  $\int \frac{216}{x^4 - 81} \, dx$

6. Find the area between the curves of  $f(x) = 3x^3 - x^2 - 10x$  and  $g(x) = -x^2 + 2x$ .

7.  $\int \frac{\sqrt{\ln x + 3}}{x} dx$

8. Find  $\frac{dy}{dx}$ .

$$e^{x+y} = \arcsin e^{2y} + x^2 + y^2$$

9.  $\int \frac{t}{\sqrt{4-t^4}} dt$