

EMT 121 - Worksheet III

Trigonometric Substitutions

April 15, 2010

1. Evaluate the following.

(a) $\int \frac{1}{x^2\sqrt{x^2-9}} dx$

(b) $\int x^3\sqrt{9-x^2} dx$

(c) $\int \frac{x^3}{\sqrt{x^2+9}} dx$

$$(d) \int_0^{2\sqrt{3}} \frac{x^3}{\sqrt{16-x^2}} dx$$

$$(e) \int \frac{1}{x^2\sqrt{25-x^2}} dx$$

$$(f) \int_0^1 \sqrt{x^2+1} dx$$

$$(g) \int \frac{dx}{(x^2+2x+2)^2}$$