

Full name(s): _____ .

Questions

1. Evaluate each of the following integrals via trigonometric substitution.

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

(b) $\int_1^2 \frac{x^5}{\sqrt{x^2+2}} dx$

(c) $\int \sqrt{1-4x^2} dx$

(d) $\int \frac{1}{9+x^2} dx$

2. Evaluate each of the following integrals via partial fractions.

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

(b) $\int \frac{x^2}{(x-1)(x-2)} dx$

(c) $\int \frac{x+1}{(x-2)^2 x} dx$

(d) $\int \frac{x}{(x-1)(x^2+1)} dx$

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