

Use trigonometric substitution on each of the following problems.

1.  $\int \frac{dx}{1-x^2}$

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

3.  $\int \frac{x^3 dx}{\sqrt{4-x^2}}$

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

5.  $\int \frac{dx}{x^2+2x+2}$

6.  $\int \frac{dx}{\sqrt{6x-x^2}}$

7.  $\int \sqrt{x^2+2x} dx$

8.  $\int \frac{dx}{(4x^2-9)^{3/2}}$