

Evaluate: a)  $\int \frac{dx}{\sqrt{3+2x-x^2}}$

b)  $\int \frac{dx}{\sqrt{x^2+x-x^2}}$

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

d)  $\int \tan^5 x dx$

f)  $\int x \tan^{-1} x dx$

Q2: Evaluate the integrals that converge: A)  $\int_0^3 \frac{dx}{(x-2)^{2/5}}$

b)  $\int_0^{\infty} \frac{dx}{x\sqrt{x^2-1}}$

Q3: If the shaded region is revolved about the line  $x=2$ , setup the integral that compute the resulting volume using.

- disk (washers) method.
- Cylindrical shell method.

1) show that  $\sinh^{-1}(x) = \ln(x + \sqrt{x^2+1})$ .

Evaluate the following integrals:

2)  $\int_{\ln 2}^{\ln 3} \csc h x dx$

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

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

5)  $\int_1^{\sqrt{2}} \frac{dx}{x^2 \sqrt{4-x^2}}$

6)  $\int \frac{\cos^3 x}{4 + \sin x} dx$