

1. Using geometry to evaluate the following:

a) $\int_{-1}^1 |3x - 1| dx$

b) $\int_{-3}^1 (|x + 2| + 3) dx$

c) $\int_{-5}^5 (\sqrt{25 - x^2} + 3) dx$

2. Integrate the following:

a) $\int \sqrt[5]{3x-5} dx$

b) $\int x^9 \sqrt[3]{2x^5+3} dx$

c) $\int \frac{7x-3}{\sqrt{2x+1}} dx$

d) $\int \frac{20x-4}{(5x^2-2x+3)^{3/5}} dx$

e) $\int \frac{\sqrt{\tan^{-1}(3x)}}{1+9x^2} dx$

f) $\int \frac{1}{x \ln x [\ln(\ln x) + 3]^2} dx$

g) $\int (1+\sqrt{x})^{21} dx$

h) $\int \frac{\cos(\sqrt{x})}{\sqrt{x}} dx$

i) $\int \sqrt{3 + \sqrt{4x + 1}} dx$

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