

1. Integration - Trig Integrals

(a) $\int \sin(x) dx$

(g) $\int \tan(x) dx$

(b) $\int \cos(x) \sin^2(x) dx$

(h) $\int \sqrt{1 - \cos(x)} dx$

(c) $\int \sin^2(x) dx$

(i) $\int \tan^5(x) \sec^2(x) dx$

(d) $\int \sin^3(x) dx$

(j) $\int \sin^2(x) \cos^2(x) dx$

(e) $\int \sin(x) \cos^4(x) dx$

(k) $\int \sec^2(x) dx$

(f) $\int \sin^4(x) dx$

(l) $\int \tan^2(x) dx$

2. Integration - Trig Sub

(a) Identify what the trig sub should be:

(b) Antidifferentiate using trig sub:

i. $\int \frac{1}{\sqrt{9 + x^2}} dx$

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ii. $\int \frac{(1 - x^2)^{5/2}}{x^8} dx$

ii. $\int (25 - x^2)^{1/2} dx$

iii. $\int \frac{1}{(4 - x^2)^{3/2}} dx$

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

iv. $\int \frac{1}{(4 - x^2)^{1/2}} dx$

3. Integration - Mixed

(a) $\int x^2 \sin(x^3) dx$

(f) $\int \sin^2(x) \cos^3(x) dx$

(k) $\int e^{\ln(x)} dx$

(b) $\int \frac{x + 4}{x^2 + 4} dx$

(g) $\int x \sin(x) dx$

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

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

(h) $\int \tan^2(x) \sec^2(x) dx$

(m) $\int \ln(x) dx$

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

(i) $\int x \sin^2(x) dx$

(n) $\int e^{\sqrt{x}} dx$

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

(j) $\int \frac{1}{x(1 + \ln(x))} dx$