

Integrals Supplement Abondanza

Part I:

$$1. \int \csc^2 \frac{x}{2} dx \quad 2. \int \frac{\csc^2 x}{\cot^3 x} dx \quad 3. \int \sqrt{\cot x} \cdot \csc^2 x dx \quad 4. \int \frac{\sec x \tan x}{\sec x - 1} dx$$

$$5. \int \frac{\sin x}{1 + \cos x} dx \quad 6. \int \frac{1 - \sin^2 \theta}{\cos^2 \theta} d\theta \quad 7. \int e^{\sec x} \cdot \sec x \tan x dx \quad 8. \int (\sin 2x + \cos 2x)^2 dx$$

Part II:

$$1. \int \frac{x+2}{\sqrt{4-x^2}} dx \quad 2. \int \frac{3x^3-2}{x^2+4} dx \quad 3. \int_0^{1/6} \frac{dx}{\sqrt{1-9x^2}} \quad 4. \int \sqrt[3]{9+x^2} dx \quad 5. \int \frac{1}{\sqrt{1-t^2}} dt$$

$$6. \int \frac{dx}{\sqrt{1-(x+1)^2}} \quad 7. \int \frac{dx}{9+(x-3)^2} \quad 8. \int \frac{dx}{\sqrt{-x^2-4x}} \quad 9. \int \frac{x+2}{\sqrt{-x^2-4x}}$$

Part III:

$$1. \int \sin^2 2x \cos 2x dx \quad 2. \int \sin^5 2x \cos^2 2x dx \quad 3. \int \cos^3 \frac{x}{3} dx \quad 4. \int \sin^4 2x dx$$

$$5. \int \sin^4 x \cos^2 x dx \quad 6. \int \sec^4 5x dx \quad 7. \int \sec^5 \pi x \tan \pi x dx \quad 8. \int \tan^3 3x \sec 3x dx$$

Part IV:

$$1. \int \frac{dx}{x^2 \sqrt{25-x^2}} \quad 2. \int x \sqrt{16-4x^2} dx \quad 3. \int \frac{\sqrt{1-x^2}}{x^4} dx \quad 4. \int \frac{dx}{\sqrt{4x^2+1}} \quad 5. \int \frac{dx}{(x^2+1)^{3/2}}$$

$$6. \int \frac{\sqrt{x^2-3}}{x} dx \quad 7. \int \frac{dx}{(x^2+1)^2} \quad 8. \int \frac{x^2 dx}{(4+x^2)^2}$$

Part V:

$$1. \int \frac{dx}{x^2-5x+6} \quad 2. \int \frac{5x^2+20x+6}{x^3+2x^2+x} dx \quad 3. \int \frac{2x^3-4x-8}{(x^2-x)(x^2+4)} dx \quad 4. \int \frac{3x+4}{x^3-2x-4} dx \quad 5. \int \frac{3}{x^2+x-2} dx$$

$$6. \int \frac{x+1}{x^2+4x+3} dx \quad 7. \int \frac{x+2}{x^2-4x} dx \quad 8. \int \frac{x^3-x+3}{x^2+x-2} dx$$