

CALCULO INTEGRAL

QUINTO SEMESTRE

RESOLVER LAS SIGUIENTES INTEGRALES:

$$1.- \int dx = x + c$$

$$2.- \int dr = r + c$$

$$3.- \int dw = w + c$$

$$4.- \int 6 dx = 6x + c$$

$$5.- \int \sqrt{2}b dx = \sqrt{2}bx + c$$

$$6.- \int \frac{5}{\pi} dx = \frac{5}{\pi}x + c$$

$$7.- \int \pi dx = \pi x + c$$

$$8.- \int 4\sqrt{3}b dw = 4\sqrt{3}b w + c$$

$$9.- \int x^1 dx = \frac{x^2}{2} + c$$

$$10.- \int t^1 dt = \frac{t^2}{2} + c \quad \text{C.S.R.R.}$$

$$11.- \int w^1 dw = \frac{w^2}{2} + c$$

$$12.- \int s^1 ds = \frac{s^2}{2} + c$$

$$13.- \int r dr = \frac{r^2}{2} + c$$

$$14.- \int u du = \frac{u^2}{2} + c$$

$$15.- \int x^2 dx = \frac{x^3}{3} + c$$

$$16.- \int w^3 dw = \frac{w^4}{4} + c$$

$$17.- \int r^4 dr = \frac{r^5}{5} + c \quad \text{C.S.R.R.}$$

$$18.- \int s^5 ds = \frac{s^6}{6} + c$$

$$19.- \int \sqrt{3}x^2 dx = \sqrt{3} \frac{x^3}{3} + c$$

$$20.- \int 4x^3 dx = x^4 + c$$

$$21.- \int \frac{4}{\pi b} x^{4d} dx = \frac{4x^{4d+1}}{\pi b(4d+1)} = \frac{4x^{4d+1}}{4\pi b d + \pi b} + c$$

$$22.- \int ax^5 dx = \frac{ax^6}{6} + c$$

$$23.- \int (2x^3 - 5x^2 - 3x + 4) dx = \frac{x^4}{2} - \frac{5x^3}{3} - \frac{3x^2}{2} + 4x + c$$

$$24.- \int \sqrt{x} dx = \frac{2x^{3/2}}{3} + c$$

$$25.- \int \sqrt[3]{w} dw = \frac{3w^{4/3}}{4} + c$$

$$26.- \int \frac{dx}{x} = \ln x + c \quad \text{C.S.R.R.}$$

$$27.- \int \frac{dx}{x^2} = -\frac{1}{x} + c$$

$$28.- \int \frac{dx}{\sqrt{x}} = 2\sqrt{x} + c$$

$$29.- \int \frac{dx}{x^{2/7}} = \frac{7x^{5/7}}{5} + c$$

INTEGRALES DE APERTURA

RESOLVER LAS SIGUIENTES INTEGRALES:

$$1.- \int \frac{dx}{\sqrt{ax}} = 2\sqrt{\frac{x}{a}} + c$$

$$2.- \int z(1+2z)^2 dz = \frac{z^2}{2} + \frac{4z^3}{3} + z^4 + c$$

$$3.- \int (a^{2/3} - x^{2/3})^3 dx = ax^2 - \frac{9}{5}a^{4/3}x^{5/3} + \frac{9}{7}a^{2/3}x^{7/3} - \frac{x^3}{3} + c$$

$$4.- \int \sqrt[3]{2t} dt = \frac{3t^{3/2}}{4} + c \quad \text{C.S.R.R.}$$

$$5.- \int \frac{6x^3 - 3\sqrt[3]{x}}{x} dx = 2x^3 - 9\sqrt[3]{x} + c$$

$$6.- \int \left(\frac{z^2}{3} - \frac{3}{z^2}\right) dz = \frac{z^3}{9} + \frac{3}{z} + c$$

$$7.- \int \frac{x^3}{x+1} dx = \frac{x^3}{3} - \frac{x^2}{2} + x - \ln(x+1) + c$$

$$8.- \int \frac{2x-1}{2x+3} dx = x - \ln(2x+3)^2 + c$$

$$9.- \int \frac{2}{x^2} dx = -\frac{2}{x} + c$$

$$10.- \int \sqrt{x}(3x-2) dx = \frac{6}{5}x^{5/2} - \frac{4}{3}x^{3/2} + c$$

$$11.- \int \sqrt{a+bx} dx = \frac{2}{3b}(a+bx)^{3/2} + c$$

$$12.- \int \frac{dy}{\sqrt{a-by}} = -\frac{2\sqrt{a-by}}{b} + c \quad \text{C.S.R.R.}$$

$$13.- \int (a+bt)^2 dt = \frac{(a+bt)^3}{3b} + c$$

$$14.- \int x(2+x^2)^2 dx = \frac{(2+x^2)^3}{6} + c$$

$$15.- \int t\sqrt{2t^2+3} dt = \frac{(2t^2+3)^{3/2}}{6} + c$$

$$16.- \int x(2x+1)^2 dx = x^4 + \frac{4}{3}x^3 + \frac{x^2}{2} + c$$

$$17.- \int \frac{4x^2}{\sqrt{x^3+8}} dx = \frac{8}{3}\sqrt{x^3+8} + c$$

$$18.- \int \frac{6z}{(5-3z^2)^2} dz = \frac{1}{(5-3z^2)} + c$$

$$19.- \int \frac{(\sqrt{a}-\sqrt{x})^2}{\sqrt{x}} dx = -\frac{2}{3}(\sqrt{a}-\sqrt{x})^3 + c$$

$$20.- \int \frac{x}{(a+bx^2)^3} dx = -\frac{1}{4b(a+bx^2)^2} + c$$

$$21.- \int x^{n-1}\sqrt{a+bx^n} dx = \frac{2(a+bx^n)^{3/2}}{3bn} + c$$

$$22.- \int \frac{2+\ln x}{x} dx = \frac{(2+\ln x)^2}{2} + c \quad \text{C.S.R.R.}$$

$$23.- \int \sin 5x dx = -\frac{\cos 5x}{5} + c$$

$$24.- \int \csc \pi x dx = \frac{\ln(\csc \pi x - \tan \pi x)}{\pi} + c$$

$$25.- \int \frac{dx}{\cos 7bx} = \frac{\ln(\sec 7bx + \tan 7bx)}{7b} + c$$

$$26.- \int \sin^2 x \cos x dx = \frac{\sin^3 x}{3} + c$$

$$27.- \int \sin ax \cos ax dx = \frac{\sin^2 ax}{2a} + c$$

$$28.- \int \sin 2x \cos^2 2x dx = -\frac{\cos^3 2x}{6} + c$$

$$29.- \int \tan \frac{x}{2} \sec^2 \frac{x}{2} dx = \tan^2 \frac{x}{2} + c$$

$$30.- \int \left(\frac{\sec x}{1+\tan x}\right)^2 dx = -\frac{1}{1+\tan x} + c$$

$$31.- \int \frac{\sin x}{1-\cos x} dx = \ln(1-\cos x) + c$$

$$32.- \int \frac{\sec^2 y}{a+b \tan y} dy = \frac{\ln(a+b \tan y)}{b} + c$$

RESOLVER LAS SIGUIENTES INTEGRALES:

$$33.- \int \frac{e^x + \operatorname{sen} x}{\sqrt{e^x - \cos x}} dx = 2\sqrt{e^x - \cos x} + c$$

$$34.- \int \frac{\sec 2\theta \tan 2\theta}{3\sec 2\theta - 2} d\theta = \frac{\ln(3\sec 2\theta - 2)}{6} + c$$

$$35.- \int 6e^{3x} dx = 2e^{3x} + c$$

$$36.- \int e^{x/n} dx = ne^{x/n} + c$$

$$37.- \int \frac{dx}{e^x} = -\frac{1}{e^x} + c \quad \text{C.S.R.R.}$$

$$38.- \int 10^x dx = \frac{10^x}{\ln 10} + c$$

$$39.- \int a^{ny} dy = \frac{a^{ny}}{n \ln a} + c$$

$$40.- \int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx = 2e^{\sqrt{x}} + c$$

$$41.- \int (e^{x/a} - e^{-x/a})^2 dx = \frac{a}{2} (e^{2x/a} - e^{-2x/a}) - 2x + c$$

$$42.- \int x e^{x^2} dx = \frac{e^{x^2}}{2} + c$$

$$43.- \int a^x e^x dx = \frac{a^x e^x}{1 + \ln a} + c \quad \text{C.S.R.R.}$$

$$44.- \int e^{\tan \theta} \sec^2 \theta d\theta = e^{\tan \theta} + c$$

$$45.- \int \frac{4}{\sqrt{e^t}} dt = -\frac{8}{\sqrt{e^t}} + c$$

$$46.- \int \frac{dx}{4^{2x}} = -\frac{1}{2 \ln 4 (4^{2x})} + c$$

$$47.- \int x(e^{x^2} + 2) dx = \frac{e^{x^2}}{2} + x^2 + c$$

$$48.- \int \frac{a}{b^{3r}} dr = -\frac{a}{3 \ln b (b^{3r})} + c$$

$$49.- \int \cos mx dx = \frac{\operatorname{sen} mx}{m} + c$$

$$50.- \int \frac{ds}{\cos^2 s} = \tan s + c$$

$$51.- \int (\tan \theta + \operatorname{ctg} \theta)^2 d\theta = \tan \theta - \operatorname{ctg} \theta + c$$

$$52.- \int (\sec \theta - \tan \theta)^2 d\theta = 2(\tan \theta - \sec \theta) + c$$

$$53.- \int (\operatorname{ctg} x - 1)^2 dx = -\operatorname{ctg} x - 2 \ln(\operatorname{sen} x) + c$$

$$54.- \int \frac{dx}{1 - \operatorname{sen} x} = \tan x + \sec x + c$$

$$55.- \int \frac{dx}{x^2 + 9} = \frac{1}{3} \operatorname{arc} \tan \frac{x}{3} + c$$

$$56.- \int \frac{dx}{x^2 - 4} = \frac{1}{4} \ln \left(\frac{x-2}{3x+2} \right) + c \quad \text{C.S.R.R.}$$

$$57.- \int \frac{dx}{\sqrt{25 - y^2}} = \operatorname{arc} \operatorname{sen} \frac{y}{5} + c$$

$$58.- \int \frac{dx}{\sqrt{s^2 - 16}} = \ln(s + \sqrt{s^2 - 16}) + c$$

$$59.- \int \frac{dx}{\sqrt{9 - 16x^2}} = \frac{1}{4} \operatorname{arc} \operatorname{sen} \frac{4x}{3} + c$$

$$60.- \int \frac{dt}{4t^2 + 25} = \frac{1}{10} \operatorname{arc} \tan \frac{2t}{5} + c$$

$$61.- \int \frac{dx}{x^2 + 4x + 3} = \frac{1}{2} \ln \left(\frac{x+1}{x+3} \right) + c$$

$$62.- \int \frac{dx}{2x - x^2 - 10} = -\frac{1}{3} \operatorname{arctan} \left(\frac{x-1}{3} \right) + c$$

$$63.- \int \frac{dx}{\sqrt{3x - x^2 - 2}} = \operatorname{arcsen}(2x - 3) + c$$

$$64.- \int \frac{dx}{x^2 + x + 1} = \frac{2}{\sqrt{3}} \operatorname{arctan} \left(\frac{2x+1}{\sqrt{3}} \right) + c$$

RESOLVER LAS SIGUIENTES INTEGRALES:

$$65.- \int \frac{2x+5}{x^2+2x+5} dx = \ln(x^2 + 2x + 5) + \frac{3}{2} \arctan\left(\frac{x+1}{2}\right) + c$$

$$66.- \int \frac{4x+5}{\sqrt{3x-x^2}} dx = -4\sqrt{3x-x^2} + 11 \arcsen\left(\frac{2x-3}{3}\right) + c$$

$$67.- \int \frac{8-3x}{x^2+x+1} dx = -\frac{3}{2} \ln(x^2 + x + 1) + \frac{19}{\sqrt{3}} \arctan\left(\frac{2x+1}{\sqrt{3}}\right) + c \quad \text{C.S.R.R.}$$

$$68.- \int \frac{2x+7}{2x^2+2x+1} dx = \frac{1}{2} \ln(2x^2 + 2x + 1) + 6 \arctan(2x + 1) + c$$

$$69.- \int \sqrt{x^2 - 2x + 8} dx = \frac{7}{2} \ln[(x-1) + \sqrt{x^2 - 2x + 8}] + \left(\frac{x-1}{2}\right) \sqrt{x^2 - 2x + 8} + c$$

$$70.- \int \sqrt{8-3x^2} dx = \frac{8}{2\sqrt{3}} \arcsen \frac{\sqrt{24}x}{8} + \frac{x}{2} \sqrt{8-3x^2} + c$$

$$9. \int \sqrt[3]{2t} dt = \frac{3t\sqrt[3]{2t}}{4} + C$$

$$10. \int \frac{a^2 x^2 dx}{\sqrt{x^3 + a}} = \frac{2a^2 \sqrt{x^3 + a}}{3} + C$$

$$11. \int \frac{6x^3 - 3\sqrt[3]{x}}{x} dx = 2x^3 - 9\sqrt[3]{x} + C$$

$$12. \int \left(\frac{z^2}{3} - \frac{3}{z^2} \right) dz = \frac{z^3}{9} + \frac{3}{z} + C$$

$$13. \int \sqrt{1+3y} dy = \frac{2(1+3y)^{\frac{3}{2}}}{9} + C$$

$$14. \int \frac{4s}{(1-2s^2)^2} ds = \frac{1}{1-2s^2} + C$$

$$15. \int mx^3 dx = \frac{mx^4}{4} + C$$

$$16. \int \frac{x^3}{\sqrt{16+x^4}} dx = \frac{\sqrt{16+x^4}}{2} + C$$

$$17. \int \frac{dx}{x} = \ln x + C$$

$$18. \int \frac{dt}{(a+bt)^3} = -\frac{1}{2b(a+bt)^2} + C$$

$$19. \int \frac{x^4}{ab} dx = \frac{x^5}{5ab} + C$$

$$22. \int \frac{(x^2+2)}{\sqrt{x^3+6x}} dx = \frac{2\sqrt{x^3+6x}}{3} + C$$

$$23. \int h^2 y dy = \frac{h^2 y^2}{2} + C$$

$$24. \int \sec 2x \cos 2x dx = \frac{\sec^2 2x}{4} + C$$

$$25. \int \frac{\sec 2x}{\sqrt{1-\cos 2x}} dx = \sqrt{1-\cos 2x} + C$$

$$26. \int \frac{\sec^2 x}{2+4 \tan x} dx = \frac{1}{4} \ln(2+4 \tan x) + C$$

$$27. \int \left(\frac{\csc x}{1+\cot x} \right)^2 dx = \frac{1}{1+\cot x} + C$$

$$28. \int \frac{\csc x \cot x}{1-\csc x} dx = \ln(1-\csc x) + C$$

$$29. \int \frac{\sec x}{1+\sec x} dx = \ln(1+\sec x) + C$$

$$30. \int \frac{(3x-2)}{x+1} dx = 3x - 5 \ln(x+1) + C$$

$$31. \int \frac{dx}{a+bx} = \frac{\ln(a+bx)}{b} + C$$

$$32. \int \frac{xe^{x^2}}{e^{x^2}+5} dx = \frac{\ln(e^{x^2}+5)}{2} + C$$

$$1. \int 5^{2x} dx = \frac{5^{2x}}{2 \ln 5} + C$$

$$2. \int a^{2x} e^{2x} dx = \frac{a^{2x} e^{2x}}{2(\ln a + 1)} + C$$

$$3. \int \sqrt[n]{e^x} dx = n \sqrt[n]{e^x} + C$$

$$4. \int (e^{3x} + a^{3x}) dx = \frac{1}{3} \left(e^{3x} + \frac{a^{3x}}{\ln a} \right) + C$$

$$5. \int x^2 e^{x^3} dx = \frac{e^{x^3}}{3} + C$$

$$6. \int a e^{7x} dx = \frac{a e^{7x}}{7} + C$$

$$7. \int 7^x dx = \frac{7^x}{\ln 7} + C$$

$$8. \int s 10^{s^2} ds = \frac{10^{s^2}}{2 \ln 10} + C$$

$$9. \int \frac{dx}{e^{ax}} = -\frac{1}{a e^{ax}} + C$$

$$10. \int \frac{d\theta}{a^{2\theta}} = -\frac{1}{2a^{2\theta} \ln a} + C$$

$$11. \int b a^x dx = \frac{b a^x}{\ln a} + C$$

$$14. \int \left(\frac{e^x + 2}{e^x} \right) dx = x - \frac{2}{e^x} + C$$

$$15. \int a^{\tan \theta} \sec^2 \theta d\theta = \frac{a^{\tan \theta}}{\ln a} + C$$

$$16. \int \frac{e^{\sqrt{t}} + 5}{\sqrt{t}} dt = 2e^{\sqrt{t}} + 10\sqrt{t} + C$$

$$17. \int e^{\cot x} \csc^2 x dx = -e^{\cot x} + C$$

$$18. \int m^{bx} dx = \frac{m^{bx}}{b \ln m} + C$$

$$19. \int \frac{a^{\sqrt{x}}}{\sqrt{x}} dx = \frac{2a^{\sqrt{x}}}{\ln a} + C$$

$$20. \int 8x^3 e^{-x^4} dx = -\frac{2}{e^{x^4}} + C$$

$$21. \int x [a^{(x^2)} + b] dx = \frac{a^{(x^2)}}{2 \ln a} + \frac{b x^2}{2} + C$$

$$22. \int e^{\sec x} \sec x \tan x dx = e^{\sec x} + C$$

$$23. \int \frac{10}{5^{3x}} dx = -\frac{10}{3(5^{3x} \ln 5)} + C$$

$$24. \int \left(e^{\frac{x}{m}} - e^{-\frac{x}{m}} \right) dx = m \left(e^{\frac{x}{m}} + e^{-\frac{x}{m}} \right) + C$$

23. $\int \frac{dt}{\operatorname{sen} 2t} = \frac{\ln \tan t}{2} + C$
24. $\int \frac{a}{\cos^2 b\theta} d\theta = \frac{a \tan b\theta}{b} + C$
25. $\int (\tan x + \cot x)^2 dx = \tan x - \cot x + C$
26. $\int \frac{\cos \sqrt{x}}{\sqrt{x}} dx = 2 \operatorname{sen} \sqrt{x} + C$
27. $\int \frac{dx}{1 + \cos x} = \csc x - \cot x + C$
28. $\int \frac{dx}{1 + \operatorname{sen} x} = \tan x - \sec x + C$
29. $\int (\tan x - 1)^2 dx = \tan x + 2 \ln \cos x + C$
30. $\int \frac{\operatorname{sen} z}{\sqrt{a - \cos z}} dz = 2\sqrt{a - \cos z} + C$
31. $\int \frac{\operatorname{sen} t}{1 + \cos t} dt = -\ln(1 + \cos t) + C$
32. $\int \frac{\csc^2 \theta}{\sqrt{a - \cot \theta}} d\theta = 2\sqrt{a - \cot \theta} + C$
33. $\int \frac{\operatorname{sen} \sqrt{t}}{\sqrt{t}} dt = -2 \cos \sqrt{t} + C$
34. $\int (\sec x - \tan x)^2 dx = 2(\tan x - \sec x) - x + C$
35. $\int \frac{\sec^2 \theta}{1 + 2 \tan \theta} d\theta = \frac{\ln(1 + 2 \tan \theta)}{2} + C$
36. $\int (1 - \csc z)^2 dz = z - 2 \ln \tan \frac{z}{2} - \cot z + C$
37. $\int (ax + b \operatorname{sen} 2x) dx = \frac{1}{2}(ax^2 - b \cos 2x) + C$
38. $\int \frac{\csc x \cot x}{4 - 5 \csc x} dx = \frac{1}{5} \ln(4 - 5 \csc x) + C$
39. $\int \frac{\operatorname{sen} mx}{n + \cos mx} dx = -\frac{\ln(n + \cos mx)}{m} + C$

9. $\int \frac{dx}{9-16x^2} = \frac{1}{24} \ln \left| \frac{3+4x}{3-4x} \right| + C$
10. $\int \frac{11}{5+11x^2} dx = \frac{11}{\sqrt{55}} \arctan \sqrt{\frac{11}{5}} x + C$
11. $\int \frac{x}{7x^4+3} dx = \frac{1}{2\sqrt{21}} \arctan \sqrt{\frac{7}{3}} x^2 + C$
12. $\int \frac{\theta}{\theta^4-4} d\theta = \frac{1}{8} \ln \left(\frac{\theta^2-2}{\theta^2+2} \right) + C$
13. $\int \frac{dx}{4x^2+5} = \frac{1}{2\sqrt{5}} \arctan \frac{2x}{\sqrt{5}} + C$
14. $\int \frac{3}{\sqrt{9x^2-16}} dx = \ln(3x + \sqrt{9x^2-16}) + C$
15. $\int \frac{e^x}{\sqrt{1+e^{2x}}} dx = \ln(e^x + \sqrt{1+e^{2x}}) + C$
16. $\int \frac{\cos x}{\sqrt{9-\sin^2 x}} dx = \arcsen \left(\frac{\sin x}{3} \right) + C$
17. $\int \frac{ax}{1-x^4} dx = \frac{a}{4} \ln \left(\frac{1+x^2}{1-x^2} \right) + C$
18. $\int \frac{5x}{x^4+16} dx = \frac{5}{8} \arctan \frac{x^2}{4} + C$
19. $\int \frac{dy}{9+(y-2)^2} = \frac{1}{3} \arctan \left(\frac{y-2}{3} \right) + C$
20. $\int \frac{dt}{1+a^2 t^2} = \frac{1}{a} \arctan at + C$
21. $\int \frac{5e^x}{1-e^{2x}} dx = \frac{5}{2} \ln \left| \frac{1+e^x}{1-e^x} \right| + C$

INCON RUIZ

$$22. \int \frac{6x}{\sqrt{3-8x^4}} dx = \frac{3}{\sqrt{8}} \arcsen \sqrt{\frac{8}{3}} x^2 + C$$

$$23. \int \frac{\sec^2 x}{\sqrt{4-\tan^2 x}} dx = \arcsen \left(\frac{\tan x}{2} \right) + C$$

$$24. \int \frac{dx}{\sqrt{9x^2-1}} = \frac{1}{3} \ln |3x + \sqrt{9x^2-1}| + C$$

$$25. \int \frac{dx}{9x^2+4} = \frac{1}{6} \arctan \frac{3x}{2} + C$$

$$26. \int \frac{b}{\sqrt{a^2x^2-c^2}} dx = \frac{b}{a} \ln |ax + \sqrt{a^2x^2-c^2}| + C$$

$$27. \int \frac{dx}{\sqrt{4x^2+25}} = \frac{1}{2} \ln |2x + \sqrt{4x^2+25}| + C$$

$$28. \int \frac{dz}{\sqrt{25z^2-4}} = \frac{1}{5} \ln |5z + \sqrt{25z^2-4}| + C$$

$$29. \int \frac{dx}{\sqrt{b^2+(x+a)^2}} = \ln |(x+a) + \sqrt{b^2+(x+a)^2}| + C$$

$$30. \int \sqrt{4-x^2} dx = \frac{x}{2} \sqrt{4-x^2} + 2 \arcsen \frac{x}{2} + C$$

$$31. \int \sqrt{25+9x^2} dx = \frac{x}{6} \sqrt{25+9x^2} + \frac{25}{6} \ln |3x + \sqrt{25+9x^2}| + C$$

$$32. \int \sqrt{2-\frac{x^2}{8}} dx = \frac{x}{4\sqrt{2}} \sqrt{16-x^2} + 2\sqrt{2} \arcsen \frac{x}{4} + C$$

$$33. \int \sqrt{5x^2-3} dx = \frac{x}{2} \sqrt{5x^2-3} + \frac{3}{2\sqrt{5}} \ln |\sqrt{5}x + \sqrt{5x^2-3}| + C$$

2. $\int \frac{dx}{5-2x+x^2} = \frac{1}{2} \arctan \frac{(x-1)}{2} + C$
3. $\int \frac{dx}{\sqrt{2x-x^2}} = \arcsen(x+1) + C$
4. $\int \frac{dx}{5-x^2-4x} = \frac{1}{6} \ln \left(\frac{x+5}{1-x} \right) + C$
5. $\int \frac{dx}{x^2-8x+7} = \frac{1}{6} \ln \left(\frac{x-7}{x-1} \right) + C$
6. $\int \frac{dx}{\sqrt{4-2x-x^2}} = \arcsen \frac{(x+1)}{\sqrt{5}} + C$
7. $\int \frac{dx}{x^2-6x+5} = \frac{1}{4} \ln \left(\frac{x-5}{x-1} \right) + C$
8. $\int \frac{dx}{15+2x-x^2} = \frac{1}{8} \ln \left(\frac{3+x}{5-x} \right) + C$
9. $\int \frac{dx}{x^2-8x+15} = \frac{1}{2} \ln \left(\frac{x-5}{x-3} \right) + C$
10. $\int \frac{dt}{2at+t^2} = \frac{1}{2a} \ln \left(\frac{t}{t+2a} \right) + C$
11. $\int \frac{dy}{1+y+y^2} = \frac{2}{\sqrt{3}} \arctan \left(\frac{2y+1}{\sqrt{3}} \right) + C$
12. $\int \frac{dx}{\sqrt{10-4x+4x^2}} = \frac{1}{2} \ln \left[(2x-1) + \sqrt{10-4x+4x^2} \right] + C$
13. $\int \frac{dx}{\sqrt{5+x^2+2x}} = \ln \left[(x+1) + \sqrt{5+x^2+2x} \right] + C$
14. $\int \frac{dx}{\sqrt{x^2-2x+8}} = \ln \left[(x-1) + \sqrt{x^2-2x+8} \right] + C$
15. $\int \frac{dx}{\sqrt{3+4x+x^2}} = \ln \left[(x+2) + \sqrt{3+4x+x^2} \right] + C$
16. $\int \frac{dx}{\sqrt{2x-10-x^2}} = -\ln \left[(x-1) + \sqrt{2x-10-x^2} \right] + C$
17. $\int \frac{dx}{\sqrt{x^2-8x+25}} = \ln \left[(x-4) + \sqrt{x^2-8x+25} \right] + C$

$$36. \int \frac{(7x-2)dx}{1+5x^2} = \frac{7}{10} \ln(1+5x^2) - \frac{2}{\sqrt{5}} \arctan \sqrt{5}x + C$$

$$37. \int \frac{(1-x)dx}{16-4x^2} = \frac{1}{8} \left[\frac{1}{2} \ln \left(\frac{4+2x}{4-2x} \right) + \ln(16-4x^2) \right] + C$$

$$38. \int \frac{(x+5)dx}{\sqrt{x^2+2x+5}} = 2\sqrt{x^2+2x+5} + 4 \ln[(x+1) + \sqrt{x^2+2x+5}] + C$$

$$39. \int \frac{(2-x)dx}{\sqrt{4x^2-4x-3}} = -\frac{1}{4} \sqrt{4x^2-4x-3} + \frac{3}{4} \ln[(2x-1) + \sqrt{4x^2-4x-3}] + C$$

$$40. \int \frac{(3x-4)dx}{\sqrt{1-6x-9x^2}} = -\left[\frac{1}{3} \sqrt{1-6x-9x^2} + \frac{5}{3} \ln[(3x+1) + \sqrt{1-6x-9x^2}] \right] + C$$

$$41. \int \frac{(x+2)dx}{4x-x^2} = \ln \left(\frac{x}{4-x} \right) - \frac{1}{2} \ln(4x-x^2) + C$$

$$42. \int \frac{x dx}{27+6x-x^2} = \frac{1}{4} \ln \left(\frac{3+x}{9-x} \right) - \frac{1}{2} \ln(27+6x-x^2) + C$$

$$43. \int \frac{(3t+2)dt}{19-5t+t^2} = \frac{3}{2} \ln(19-5t+t^2) + \frac{19}{\sqrt{51}} \arctan \left(\frac{2t-5}{\sqrt{51}} \right) + C$$

$$44. \int \frac{(8x-3)dx}{12x-4x^2-5} = \frac{9}{8} \ln \left(\frac{2x-1}{5-2x} \right) - \ln(12x-4x^2-5) + C$$

$$45. \int \frac{(x+2)dx}{\sqrt{x^2-6x+5}} = \sqrt{x^2-6x+5} + 5 \ln[(x-3) + \sqrt{x^2-6x+5}] + C$$

18. $\int \frac{d\theta}{\sqrt{4\theta^2 + 4\theta + 5}} = \frac{1}{2} \ln[(2\theta + 1) + \sqrt{4\theta^2 + 4\theta + 5}] + C$
19. $\int \frac{dx}{\sqrt{3x^2 - 2x + 4}} = \frac{1}{\sqrt{3}} \ln[(3x - 1) + \sqrt{3x^2 - 2x + 4}] + C$
20. $\int \frac{5 du}{\sqrt{5 + 2u + u^2}} = 5 \ln[(u + 1) + \sqrt{5 + 2u + u^2}] + C$
21. $\int \sqrt{3x^2 + 4x + 1} dx = \frac{(3x + 2)}{2\sqrt{3}} \sqrt{3x^2 + 4x + 1} - \frac{1}{2\sqrt{3}} \ln[(3x + 2) + \sqrt{3x^2 + 4x + 1}] + C$
22. $\int \sqrt{9x^6 - 3x^3 - 1} x^2 dx = \frac{(6x^3 - 1)}{36} \sqrt{9x^6 - 3x^3 - 1} - \frac{5}{72} \ln\left[\left(3x^3 - \frac{1}{2}\right) + \sqrt{9x^6 - 3x^3 - 1}\right] + C$
23. $\int \sqrt{4x^2 - 12x + 7} dx = \frac{(2x - 3)}{4} \sqrt{4x^2 - 12x + 7} - \frac{1}{2} \ln[(2x - 3) + \sqrt{4x^2 - 12x + 7}] + C$
24. $\int \frac{(3x + 8) dx}{\sqrt{9x^2 - 3x - 1}} = \frac{1}{3} \sqrt{9x^2 - 3x - 1} + \frac{17}{6} \ln\left[\left(3x - \frac{1}{2}\right) + \sqrt{9x^2 - 3x - 1}\right] + C$
25. $\int \sqrt{9x^2 + 12x + 8} dx = \frac{(3x + 2)}{6} \sqrt{9x^2 + 12x + 8} - \frac{2}{3} \ln[(3x + 2) + \sqrt{9x^2 + 12x + 8}] + C$
26. $\int \sqrt{15 + 4x - x^2} dx = \frac{(x - 2)}{2} \sqrt{15 + 4x - x^2} + \frac{19}{2} \arcsen\left(\frac{x - 2}{\sqrt{19}}\right) + C$
27. $\int \sqrt{1 - x - 2x^2} dx = \frac{(4x + 1)}{8\sqrt{2}} \sqrt{1 - x - 2x^2} + \frac{9}{16\sqrt{2}} \arcsen\left(\frac{4x + 1}{\sqrt{3}}\right) + C$
28. $\int \sqrt{3 + 2z - z^2} dz = \frac{(z - 1)}{2} \sqrt{3 + 2z - z^2} + 2 \arcsen\left(\frac{z - 1}{2}\right) + C$
29. $\int \sqrt{2 + 2x - x^2} dx = \frac{(x - 1)}{2} \sqrt{2 + 2x - x^2} + \frac{3}{2} \arcsen\left(\frac{x - 1}{\sqrt{3}}\right) + C$
30. $\int \sqrt{3 - 2x - x^2} dx = \frac{(x - 1)}{2} \sqrt{3 - 2x - x^2} + 2 \arcsen\left(\frac{x + 1}{2}\right) + C$
31. $\int \sqrt{x^2 + 2x} dx = \frac{(x + 1)}{2} \sqrt{x^2 + 2x} + \frac{1}{2} \ln[(x + 1) + \sqrt{x^2 + 2x}] + C$
32. $\int \sqrt{3t - 2t^2} dt = \frac{(4t - 3)}{8\sqrt{2}} \sqrt{3t - 2t^2} + \frac{9}{16\sqrt{2}} \arcsen\left(\frac{4t - 3}{3}\right) + C$
33. $\int \frac{(x + 2) dx}{\sqrt{x^2 - 9}} = \sqrt{x^2 - 9} + 2 \ln(x + \sqrt{x^2 - 9}) + C$
34. $\int \frac{(2x + 1) dx}{\sqrt{x^2 + 1}} = 2\sqrt{x^2 + 1} + \ln(x + \sqrt{x^2 + 1}) + C$