Integrals of trigonometric functions

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$\int \sin u\,du = -\cos u + c$

$\int \cos u\,du = \sin u + c$

Solve the following integrals:

$u = 2x$
$du = 2$

1. $\int (\text{sen}2x + \cos 2x)dx = -\frac{1}{2}\cos(2x) + \frac{1}{2}\sin(2x) + c$ R: $\frac{1}{2}(-\cos 2x + sen2x) + C$

2. $\int \text{sen}(3x-1)6dx$ $-2\cos(3x-1) + c$ R: $-2\cos(3x-1) + C$

$u = 3x - 1$
$du = 3$

3. $\int \text{sen}\frac{x}{5}dx = -5\cos\frac{x}{5} + C$ R: $-5\cos\frac{x}{5} + C$

$du = 1$

4. $\int (\text{sen}5x)^2 \cos 5x dx = \left(\frac{1}{5}\right)\left(\frac{(\sin 5x)^3}{3}\right) + c$ R: $\frac{1}{15}(sen5x)^3 + C$

$u = \sin 5x$
$du = 5\cos(5x)$

5. $\int (\cos 4x)^3 \text{sen}4x dx = -\frac{1}{16}(\cos(4x))^4 + c$ R: $-\frac{1}{16}(\cos 4x)^4 + C$

$du = 4\sin(4x)$

6. $\int \frac{1}{4}\text{sen}(2x+3)dx = -\frac{1}{8}\cos(2x+3) + c$ R: $-\frac{1}{8}\cos(2x+3) + C$

$u = 2$

7. $\int -\frac{1}{8}\cos 8x dx = -\frac{1}{64}\text{sen}8x + c$ R: $-\frac{1}{64}$ Sen 8x + C

$u = 8$

8. $\int \frac{3\cos 2x}{\text{sen}2x}dx = +\frac{3}{2}\ln|\text{sen}2x| + c$ R: $\frac{3}{2}$ ln | Sen 2x | + C

$du = -2\cos 2x$

9. $\int e^{3x}\text{sen}(e^{3x})dx = -\frac{1}{3}\cos e^{3x} + c$ R: $-\frac{1}{3}$ Cos e^{3x} + C

$u = 3e^{3x}$

10. $\int (x-1)\cos(3x^2 - 6x)dx = \frac{1}{6}\sin(3x^2 - 6x) + c$ R: $-\frac{1}{6}$ Sen ($3x^2$ – 6x) + C

$u = 6x - 6$

11. $\int (\cos 4x)^3 \text{sen}4x dx$ $-\frac{1}{16}(\cos 4x)^4 + c$ R: $-\frac{1}{16}$(Cos 4x)^4 + C

$u = 4\sin 4x$

12. $\int 3x\text{sen}(x^2 - 6)dx = -\frac{3}{2}\cos(x^2 - 6) + c$ R: $-\frac{3}{2}$ Cos (x^2 – 6) + C

$u = 2x$