

5) trigonométriques

$$(a) \int \sin(2x) \cos x \, dx = 2 \int \sin x \cdot \cos^2 x \, dx = 2 \frac{\cos^3 x}{(-3)} + C = -\frac{2}{3} \cos^3 x + C$$

$$(b) \int \frac{\cos^5 x}{\sqrt{\sin x}} \, dx = \left\{ \begin{array}{l} u^2 = \sin x \\ 2u \, du = \cos x \, dx \end{array} \right\} = \int \frac{\cos^5 x}{u} \frac{2u \, du}{\cos x} = 2 \int \cos^4 x \, du =$$

$$= 2 \int (1 - \sin^2 x)^2 \, du = 2 \int (1 - u^4)^2 \, du = 2 \int (1 - 2u^4 + u^8) \, du =$$

$$= 2u - \frac{4u^5}{5} + \frac{2u^9}{9} + C = 2\sqrt{\sin x} - \frac{4}{5} (\sin x)^{5/2} + \frac{2}{9} (\sin x)^{9/2} + C$$

$$(c) \int \sin^3 x \, dx = \int (1 - \cos^2 x) \sin x \, dx = -\cos x - \frac{\cos^3 x}{(-3)} + C = -\cos x + \frac{1}{3} \cos^3 x + C$$