# ICE - Sine and Cosine Antiderivatives

**Calculate formulas for each of the integrals given in the table below.**

| Indefinite Integral | Formula |
|---|---|
| $\int \cos(2x) \cdot dx$ | |
| $\int 3x^2 \cdot \sin(x^3) \cdot dx$ | |
| $\int \dfrac{\cos(\sqrt{x})}{\sqrt{x}} \cdot dx$ | |
| $\int \dfrac{\cos(x)}{\sqrt{1 + \sin(x)}} \cdot dx$ | |
| $\int 3 \cdot \cos(x) \cdot 2^{\sin(x)} \cdot dx$ | |
| $\int \dfrac{-2 \cdot \cos(x) \cdot \sin(x)}{1 + \cos^2(x)} \cdot dx$ | |
| $\int \cos(\sin(x)) \cdot \cos(x) \cdot dx$ | |
| $\int \dfrac{-\sin(x)}{1 + e^{\cos(x)}} \cdot dx$ | |

**Answers:** (a) $0.5*\sin(2x) + C$.    (b) $-\cos(x^3) + C$.    (c) $2*\sin(x^{1/2}) + C$.    (d) $2*[1 + \sin(x)]^{1/2} + C$.
(e) $(3/\ln(2))*2^{\sin(x)} + C$.    (f) $\ln(1 + \cos^2(x)) + C$.   (g) $\sin(\sin(x)) + C$.    (h) $\ln(1 + e^{\cos(x)}) + C$.