

Evaluate the following integrals, and check your answer by differentiation. Then use Maple to *verify* your answers by either graphing the integrand and the antiderivative on the same set of axes or by using Maple's **Int()** command.

$$1. \int 2x \cos(x^2) dx$$

$$2. \int x^2 \sin(x^3) dx$$

$$3. \int 7e^{4x} dx$$

$$4. \int \sin(x) (\cos(x))^2 dx$$

$$5. \int \frac{\ln(x)}{x} dx$$

$$6. \int \sec(x) \tan(x) dx$$

$$7. \int \sec(x) \tan(x) e^{\sec(x)} dx$$

$$8. \int \frac{\sin(\sqrt{x})}{\sqrt{x}} dx$$

$$9. \int \tan(x) (\sec(x))^2 dx$$

$$10. \int \frac{x^5 + x - 2}{x^6 + 3x^2 - 12x + 3} dx$$

$$11. \int \frac{e^x}{1 + e^{2x}} dx$$

$$12. \int \frac{x}{1 + x^2} dx$$