

## Topic 20: Substitution

Evaluate the indicated integral.

$$1. \int (2x+1)(x^2+x)^3 dx$$

$$2. \int \cos x \sqrt{\sin x + 1} dx$$

$$3. \int x e^{x^2+1} dx$$

$$4. \int \frac{1}{x \ln \sqrt{x}} dx$$

Evaluate the definite integral.

$$5. \int_0^2 x \sqrt{x^2+1} dx$$

$$6. \int_{\pi/2}^{\pi} \frac{4 \cos x}{(\sin x + 1)^2} dx$$

Answers

$$1) \frac{1}{4}(x^2+x)^4 + C$$

$$2) \frac{2}{3}(\sin x + 1)^{3/2} + C$$

$$3) \frac{1}{2} e^{x^2+1} + C$$

$$4) 2 \ln |\ln x| + C$$

$$5) \frac{5}{3} \sqrt{5} - \frac{1}{3}$$

$$6) -2$$