

Integration Drill

Evaluate the following definite and indefinite integrals:

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

$$(2) \int_0^5 (1 + 2x^3) dx$$

$$(3) \int_0^1 e^\pi dt$$

$$(4) \int_{-2}^0 (u^5 - u^3 + u^2) du$$

$$(5) \int \sqrt[5]{x^2}(3x^3 + 2x^2) dx$$

$$(6) \int_{-1}^0 (2t - e^t) dt$$

$$(7) \int_\pi^{2\pi} \cos x dx$$

$$(8) \int (3y + 2)^2 dy$$

$$(9) \int_0^1 (4t^3 - t)(2t + 5) dt$$

$$(10) \int_{-2}^{-1} \left(4y^3 + \frac{2}{y^3} \right) dy$$

$$(11) \int x^{1/2}(2x^{2/3} - 3x^{-3/4}) dx$$

$$(12) \int_1^2 \frac{t + 5t^7}{t^3} dt$$

$$(13) \int_1^9 \frac{3x - 2}{\sqrt{x}} dx$$

$$(14) \int_0^{\pi/4} \sec^2 s ds$$

$$(15) \int (2e^u + \cos u) du$$

$$(16) \int (5a^2 + 4b^3) dx$$

$$(17) \int_1^9 \frac{1}{2x} dx$$

$$(18) \int_0^1 10^t dt$$

$$(19) \int_{1/2}^{\sqrt{3}/2} \frac{6}{\sqrt{1-y^2}} dy$$

$$(20) \int \frac{4}{x^2 + 1} dx$$

$$(21) \int_{\pi/4}^{\pi/3} \sec \theta \tan \theta d\theta$$

$$(22) \int_{-1}^1 e^{u+4} du$$

$$(23) \int_0^1 (1 + x^2)^3 dx$$

$$(24) \int_0^{\pi/4} \frac{1 + \cos^2 x}{\cos^2 x} dx$$

$$(25) \int \frac{\sin \theta + \sin \theta \tan^2 \theta}{\sec^2 \theta} d\theta$$