

(1)

$$\int \frac{z}{2z^2 + 8} dz =$$

(2) Find  $(f^{-1})'(2)$  given that  $f(x) = x^5 + 5x - 4$ .

(3)

$$\int \frac{e^{-1/x}}{x^2} dx =$$

(4)

$$\int_1^4 \frac{5\sqrt{x}}{\sqrt{x}} dx =$$

(5) Find the solution to  $\frac{dy}{dt} = 6y$  given that  $y(0) = 1$ .

(6) Find the general solution to the differential equation

$$\frac{dy}{dx} + \frac{y}{x} = \frac{1}{x}.$$

(7)

$$\int \frac{1}{\sqrt{12 - 9x^2}} dx =$$

(8)

$$\int e^x \sinh(e^x) dx =$$

(9)

$$\int_0^{\pi/4} \frac{\cos x}{1 + \sin^2 x} dx =$$

(10)

$$\int x \cosh x dx =$$

(11)

$$\int \sin^3 x dx =$$

(12)

$$\int \frac{2z - 3}{\sqrt{1 - z^2}} dz =$$

(13)

$$\int \frac{3x + 2}{x^3 + 3x^2 + 3x + 1} dx =$$