

CHAPTER 01

1.1

(a) $y = c(x - 1)$

(b) $y = c\sqrt{x^2 - 1} + 1$

(c) $y = \frac{1}{\frac{1}{2}x^2 + x + c}$

(d) $\ln y = e^x + c$

(e) $y = \ln(-e^{-x} + x + c)$

(f) $y = e^{x - 2\ln x + c_1} = c\frac{1}{x^2}e^x$

(g) $y = ce^{-2\sin x}$

(h) $y = ce^{\frac{1}{2}(\ln x)^2}$

(i) $y = \frac{4x}{x + 1}$

(j) $y = -e^{-x} - x + 2$

(k) $y^2 = -x^2 + 4$

(l) $y^2 = -x^2 + 2x$

(m) $y = \frac{e^{x^2/2}}{2 - e^{x^2/2}}$

(n) $y = \frac{2x}{3x - 2}$

(o) $y = \frac{1}{2}(x + 2)$

(p) $\frac{y-1}{y} = \frac{1}{2\sqrt{e}}e^{-\frac{1}{2}x^2}$

1.2

$v(1) = 0.2(m/s)$

1.3

$w(t) = w_0 e^{-\frac{c}{J}t}$

1.4

(a) $y = ce^{-\frac{1}{2}x^2 + 2x}$

(b) $y = ce^{-x^3}$

(c) $y = e^{1/x}$

(d) $y = e^{\sin x}$

1.5

(a) $y = -\frac{1}{2} + x + ce^{-2x}$

(b) $y = \frac{1}{2}(\cos x + \sin x) + ce^{-x}$

(c) $y = -\frac{1}{2} + \frac{3}{2}e^{2x}$

(d) $y = -x - 1 + 2e^x$

1.6

$$(a) \ y = \frac{2}{2cx - x^3}$$

$$(b) \ y = \frac{3}{3Cx - x^4}$$

$$(c) \ y = \frac{1}{\frac{1}{2}e^{-x} + ce^x}$$

1.7

$$(a) \ f(x, y) = x^2 + xy^2 = c$$

$$(b) \ f(x, y) = x^2y + xy = c$$

$$(c) \ f(x, y) = 2e^x + 2xy - ye^{-y} - e^{-y} = c$$

$$(d) \ f(x, y) = \frac{1}{3}x^3 + y^2x + y = c$$

$$(e) \ f(x, y) = -xy + \frac{1}{3}y^3 = \frac{1}{3}$$

$$(f) \ y = \sqrt{\frac{4-x^3}{3x}}$$

1.8

$$(a) \ f(x, y) = \frac{1}{2}e^{2x}y^2 = c$$

$$(b) \ f(x, y) = x^2e^x - xe^x + e^x + y^2e^x = c \quad \text{또는} \quad y = \pm \sqrt{-1 + x - x^2 + ce^{-x}}$$

$$(c) \ f(x, y) = -\frac{y+1}{x+1} = c$$

$$(d) \ y = \frac{c}{\sqrt{x}}$$

$$(e) \ y = \frac{1}{2}(-2 + 4x - 4x^2 + 18e^{-2x})^{\frac{1}{2}}$$

$$(f) \ y = (4 - \ln(x^2 + 1))^{\frac{1}{2}}$$

1.9

$$v(t) = -e^{-t} + 1$$

1.10

$$i(t) = -\frac{5}{2}e^{-2t} + \frac{5}{2}$$