

W10 - P1

$$\text{Integrate}[(3x + 1)^5, x] + C$$

$$C + \frac{1}{18} (1 + 3x)^6$$

$$\text{Integrate}[(3y^2 + 2) \text{Exp}[-(y^3 + 2y)], y] + C$$

$$C - e^{-2y - y^3}$$

W10 - P2

$$\text{Integrate}[\sqrt{2x - 1}, x] + C$$

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

$$\text{Integrate}[(1 - \alpha) \text{Exp}[4\alpha - 2\alpha^2], \alpha] + C$$

$$C + \frac{1}{4} e^{-2(-2+\alpha)\alpha}$$

$$\text{Integrate}[\text{Cos}[\varphi] \text{Exp}[2 \text{Sin}[\varphi]], \varphi] + C$$

$$C + \frac{1}{2} e^{2 \text{Sin}[\varphi]}$$

W10 - P3

$$\text{Assuming}[\theta > 0 \&\& T > 0, \text{Integrate}[(2J + 1) \text{Exp}[-J(J + 1)\theta / T], \{J, 0, \infty\}]]$$

$$\frac{T}{\theta}$$

W10 - P4

$$\text{Integrate}\left[\frac{x}{3x^2 - 2}, \{x, 1, 2\}\right]$$

$$\frac{\text{Log}[10]}{6}$$

$$\text{Integrate}\left[\frac{\text{Sin}[\sqrt{x} + \pi]}{\sqrt{x}}, \{x, 0, \pi^2\}\right]$$

$$-4$$

$$\text{Integrate}[\sqrt{\text{Sin}[\theta]} \text{Cos}[\theta], \{\theta, 0, \pi/2\}]$$

$$\frac{2}{3}$$

$$\text{Integrate}\left[\frac{1}{\sqrt{2 - x^2}}, \{x, 0, 1\}\right]$$

$$\frac{\pi}{4}$$

$$\text{Integrate}[x \text{Exp}[-x^2], \{x, 0, \infty\}]$$

$$\frac{1}{2}$$

W10 - P5

$$\text{Integrate}[x \text{Sin}[x], x] + C$$

$$C - x \text{Cos}[x] + \text{Sin}[x]$$

$$\text{Integrate}[x^3 \text{Sin}[x], x] + C$$

$$C - x(-6 + x^2) \text{Cos}[x] + 3(-2 + x^2) \text{Sin}[x]$$

$$\text{Integrate}[(x + 1)^2 \text{Cos}[2x], x] + C$$

$$C + \frac{1}{2}(1 + x) \text{Cos}[2x] + \frac{1}{4}(1 + 4x + 2x^2) \text{Sin}[2x]$$

$$\text{Integrate}[x^2 \text{Exp}[2x], x] + C$$

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

$$\text{Integrate}[x \text{Exp}[x], \{x, 0, 1\}]$$

$$1$$

$$\text{Integrate}[x^2 \text{Exp}[-2x], \{x, 0, \infty\}]$$

$$\frac{1}{4}$$

$$\text{Integrate}[x \text{Log}[x], x] + C$$

$$C - \frac{x^2}{4} + \frac{1}{2}x^2 \text{Log}[x]$$

$$\text{Integrate}\left[\frac{\text{Log}[x]}{x^2}, x\right] + C$$

$$C - \frac{1}{x} - \frac{\text{Log}[x]}{x}$$

W10 - P6

$$\text{Integrate}\left[\frac{1}{\text{Cos}[x]}, x\right] + C$$

$$C - \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] - \text{Sin}\left[\frac{x}{2}\right]\right] + \text{Log}\left[\text{Cos}\left[\frac{x}{2}\right] + \text{Sin}\left[\frac{x}{2}\right]\right]$$