

$$5) \int_{-3}^2 (-x-1) dx$$

$$= -\frac{x^2}{2} - x \Big|_{-3}^2$$

$$\left(-\frac{2^2}{2} - 2\right) - \left(-\frac{(-3)^2}{2} + 3\right)$$

$$(-2-2) - \left(-\frac{9}{2} + 3\right)$$

$$-4 + \frac{9}{2} - 3$$

$-7 + \frac{9}{2}$  common denominator?

$$-\frac{14+9}{2} = \boxed{-\frac{5}{2} u^2}$$

$$7) \int_0^3 (-2x^2 + 4x + 2) dx$$

$$-\frac{2x^3}{3} + \frac{4x^2}{2} + 2x$$

$$= -\frac{2x^3}{3} + 2x^2 + 2x \Big|_0^3$$

$$= \frac{-2(3)^3}{3} + 2(3)^2 + 2(3) - [0]$$

$$= -\frac{2(27)}{3} + 2(9) + 6$$

$$-2(9) + 18 + 6$$

$$-18 + 18 + 6 = \boxed{6u^2}$$

$$9) \int_{\frac{\pi}{6}}^{\frac{\pi}{2}} -\sin x dx = -\int_{\frac{\pi}{6}}^{\frac{\pi}{2}} \sin x dx$$

$$= \cos x \Big|_{\frac{\pi}{6}}^{\frac{\pi}{2}}$$

$$= \cos \frac{\pi}{2} - \cos \frac{\pi}{6}$$

$$= 0 - \frac{\sqrt{3}}{2} = \boxed{-\frac{\sqrt{3}}{2} u^2}$$

$$6) \int_{-3}^1 (2x+2) dx$$

$$= \frac{2x^2}{2} + 2x = x^2 + 2x \Big|_{-3}^1$$

$$= (1^2 + 2(1)) - ((-3)^2 + 2(-3))$$

$$= 3 - (9-6)$$

$$= 3 - 3 = \boxed{0u^2}$$

$$8) \int_{-2}^2 5x^{\frac{1}{3}} dx = \frac{5x^{\frac{4}{3}}}{\frac{4}{3}} = 5\left(\frac{3}{4}\right)x^{\frac{4}{3}} \Big|_{-2}^2$$

$$= \frac{15}{4} x^{\frac{4}{3}} \Big|_{-2}^2 = \frac{15}{4} (2)^{\frac{4}{3}} - \frac{15}{4} (-2)^{\frac{4}{3}}$$

$$= \frac{15}{4} (16)^{\frac{1}{3}} - \frac{15}{4} (16)^{\frac{1}{3}}$$

$$= \boxed{0u^2}$$

$$10) \int_{-1}^0 e^x dx = e^x \Big|_{-1}^0 = e^0 - e^{-1}$$

$$= 1 - e^{-1}$$

$$= \boxed{1 - \frac{1}{e} u^2}$$

$$\text{or } \boxed{\frac{e-1}{e} u^2}$$