定積分の計算 (解答)

■1 $\displaystyle\int_{-1}^{3}(3x^2-2x+1)\,dx-\int_{0}^{3}(3x^2-2x+1)\,dx=\int_{-1}^{3}(3x^2-2x+1)\,dx+\int_{3}^{0}(3x^2-2x+1)\,dx$

$\displaystyle=\int_{-1}^{0}(3x^2-2x+1)\,dx=\Big[\,x^3-x^2+x\,\Big]_{-1}^{0}=0-(-1-1-1)=3$

■2 $\displaystyle\int_{-1}^{3}(x+1)^2(x-3)\,dx=\int_{-1}^{3}(x^3-x^2-5x-3)\,dx=$

$\displaystyle\Big[\,\frac{1}{4}x^4-\frac{1}{3}x^3-\frac{5}{2}x^2-3x\,\Big]_{-1}^{3}=\Big(\frac{81}{4}-9-\frac{45}{2}-9\Big)-\Big(\frac{1}{4}+\frac{1}{3}-\frac{5}{2}+3\Big)=-\frac{64}{3}$