

# Integral Indefinida - Cambio de variable

3pt Planet

Solución

$$\int (3-x) 7^{(3-x)^2} dx$$

$$(3-x)^2 = 9 - 6x + x^2$$

$$\int (3-x) 7^{\underline{(9-6x+x^2)}} dx$$

$$u = 9 - 6x + x^2$$

$$du = 0 - 6 + 2x \, dx$$

$$du = -6 + 2x \, dx$$

$$dx = \frac{du}{-6+2x}$$

$$\int (3-x) 7^{\underline{(u)}} \frac{du}{-6+2x}$$

$$* \int a^u du = \frac{a^u}{\ln(a)} + C$$

$$\int (3-x) 7^{\underline{(u)}} \frac{du}{2(-3+x)} = \int \cancel{(3-x)} 7^u \frac{du}{-2\cancel{(3-x)}}$$

$$-\frac{1}{2} \int 7^u du = -\frac{1}{2} \frac{7^u}{\ln(7)} + C$$

$$= -\frac{1}{2} \frac{7^{(9-6x+x^2)}}{\ln(7)} + C = -\frac{7^{(3-x)^2}}{2 \ln(7)} + C$$