

(46)

$$\int x (3x+9)^{10} dx$$

$$u = 3x + 9$$

$$\frac{u-9}{3} = x$$

$$du = 3 dx$$

$$\frac{1}{3} du = dx$$

$$\frac{1}{3} \int \frac{u-9}{3} \cdot u^{10} du$$

$$\rightarrow \frac{1}{9} \int u^4 - 9u^{10} du$$

$$\frac{1}{9} \left(\frac{u^{12}}{12} - \frac{9u^{11}}{11} \right) + C$$

$$\frac{(3x+9)^{12}}{108} - \frac{(3x+9)^{11}}{11} + C$$