(9)

$$I = \int \frac{dx}{(x+4)^{8/7}(x-3)^{6/7}}$$

$$= \int \frac{dx}{(x+4)^{8/7}\left(\frac{x-3}{x+4}\right)^{6/7}\cdot(x+4)^{6/7}}$$

$$= \int \frac{dx}{(x+4)^{2}\left(\frac{x-3}{x+4}\right)^{6/7}}$$

$$= \int \frac{dx}{(x+4)^{2}\left(1-\frac{7}{x+4}\right)^{6/7}}$$

Let $1-\frac{7}{x+4} = t$

$$\frac{7}{(x+4)^2}\,dx = dt$$

So

$$I = \int \frac{dt/7}{(t)^{6/7}}$$

$$= \frac{1}{7}\int t^{-6/7}\,dt$$

$$= \frac{1}{7}\,\frac{t^{1/7}}{1/7} + c$$

$$= t^{1/7} + c = \left(1-\frac{7}{x+4}\right)^{1/7} + c = \left(\frac{x-3}{x+4}\right)^{1/7} + c$$