Take the integral:

$\int \sqrt{9+\frac{4}{x^{\frac{2}{3}}}}dx$

For the integrand $\sqrt{9+\frac{4}{x^{\frac{2}{3}}}}$, substitute $u=x^{\frac{-2}{3}}$ and $du=-\frac{2}{3x^{\frac{5}{3}}}dx$

$\int \sqrt{9+\frac{4}{x^{\frac{2}{3}}}}dx=-\frac{3}{2}\int \frac{\sqrt{4u+9}}{u^{\frac{5}{2}}}du$

For the integrand $\frac{\sqrt{4u+9}}{u^{\frac{5}{2}}}$, substitute $s=\sqrt{u}$ and $ds=\frac{1}{2\sqrt{u}}du$

integral$=-3\int \frac{\sqrt{4s^2+9}}{s^4}ds$

For the integrand $\frac{\sqrt{4s^2+9}}{s^4}$, substitute $s=\frac{3tan(p)}{2}$ and $ds=\frac{3}{2}sec^2(p)dp$.

Then $\sqrt{4s^2+9}=\sqrt{9tan^2(p)+9}=3sec(p)$ and $p=tan^{-1}(\frac{2s}{3})$

integral$=-\frac{27}{2}\int \frac{16}{81}cot(p)csc^3(p)dp=-\frac{8}{3}\int cot(p)csc^3(p)dp$

substitute $w=csc(p)$ and get

integral$=\frac{8\int w^2dw}{3}=\frac{8csc^3(p)}{9}+constant==\frac{(4s^2+9)^{\frac{3}{2}}}{9s^3}+constant=$

$=\frac{1}{9}x(\frac{4}{x^{\frac{2}{3}}}+9)^{\frac{3}{2}}+constant$