a) $\int x\sqrt{x-1}\,dx = \left(\begin{matrix} t=x-1 \\ dt=dx \end{matrix}\right) = \int (t+1)\sqrt{t}\,dt = \int t\sqrt{t}\,dt + \int t\,dt =$
$= \int t \cdot t^{1/2}\,dt + \int t^{1/2}\,dt = \int t^{3/2}\,dt + \int t^{1/2}\,dt = \frac{t^{5/2}}{5/2} + \frac{t^{3/2}}{3/2} + C =$
$= \frac{2}{5} t^{5/2} + \frac{2}{3} t^{3/2} + C = \frac{2}{5}(x-1)^{5/2} + \frac{2}{5}(x-1)^{3/2} + C$

b) $\int \frac{\operatorname{sen} x}{\sqrt{\cos x}}\,dx = \int \frac{-dt}{\sqrt{t}} = -\int \frac{1}{t^{1/2}}\,dt = \int t^{-1/2}\,dt =$
$= -\frac{t^{1/2}}{1/2} + C = -2t^{1/2} + C = -2\sqrt{t} + C = -2\sqrt{\cos x} + C$

c $\int \frac{x^2}{x^3-2}\,dx = \frac{1}{3}\int \frac{dt}{t} = \frac{1}{3}\ln|t| + C = \frac{1}{3}\ln|x^3-2| + C$

d) $\int (e^x-3)^4 e^x\,dx = \int t^4\,dt = \frac{t^5}{5} + C = \frac{(e^x-3)^5}{5} + C$

e) $\int \frac{2x}{1+x^4}\,dx = \int \frac{1}{1+t^2}\,dt = \operatorname{arctag} t + C = \operatorname{artag}(x^2) + C$

f) $\int \frac{\ln x}{x}\,dx = \int t\,dt = \frac{t^2}{2} + C = \frac{(\ln|x|)^2}{2} + C$

g) $\int \frac{e^{\operatorname{tag} x}}{\cos x}\,dx = \int e^t\,dt = e^t + C = e^{\operatorname{tag} x} + C$

h) $\int \ln x\,dx = x\ln x - \int x\frac{dx}{x} = x\ln x - \int dx = x\ln x - x + C$

J) $\int x\ln x\,dx = \frac{x^2}{2}\ln x - \frac{1}{2}\int x^2\frac{dx}{x} = \frac{x^2}{2}\ln x - \frac{1}{2}\int x\,dx = \frac{1}{2}\int x\,dx = \frac{x^2}{2}$
$\ln x - \frac{1}{2}\frac{x^2}{2} + C = \frac{x^2}{2}\ln x - \frac{x^2}{4} + C$

J) $\int x e^x \, dx = x e^x - \int e^x - \int e^x - \cancel{dx} \; f \; x e^x - f c$