(1) $\frac{1}{10}(2x-1)^{5/2}+\frac{1}{6}(2x-1)^{3/2}+C$
(2) 略過
(3) $\int_0^1 \pi[(x^{1/3})^2-(x^2)^2]$
(4) 略過
(5) 略過
(6) Very complicate. Set $y=(\ln x)^{\ln x}$, Take natural logarithmic on both sides and use implicit differentiation. Try x^x instead. It's much easier.
(7) 略過
(8) 查積分表. Ans=$\frac{1}{6}\tan^{-1}(\frac{2x}{3})|_0^{3/2}=\frac{\pi}{24}$
(9) Integration by parts. $u=\ln(x+1)$, $dv=xdx$
(10) 略過
(11) 查積分表
(12) Partial Fraction Form. $x^3+x^2-6x=x(x-2)(x+3)$