Evaluate the integrals

1. $\int_{-1}^{\ln 2} \frac{3t}{e^t}\,dt$

2. $\int \frac{x}{2\sqrt{x+2}}\,dx$

3. $\int x\tan^{-1} x\,dx$

4. $\int x\sinh x\,dx$

5. $\int_{\pi}^{2\pi} \cot\frac{x}{3}\,dx$

6. $\int x^2\cos x\,dx$

7. $\int e^x \sin x\,dx$

8. $\int_{1}^{e} x^2 \ln x\,dx$

9. $\int x^2\cosh x\,dx$

10. $\int \sinh^{-1} x\,dx$

11. The region R is bounded by the curve $y=\ln x$ and the *x-axis* on the interval $[1,\ e]$. Find the volume of the solid that is generated when R is revolved in the following ways

a) About the *x-axis*

b) About the *y-axis*

c) About the line $x=1$

d) About the line $y=1$