1 | $\int_1^2 \frac{e^{\frac{1}{x}}}{x^2} dx$

$$\begin{aligned}\int -e^u du &= -e^u + C \\ &= -e^{\frac{1}{2}} + e^{\frac{1}{1}} \\ &= e - e^{\frac{1}{2}}\end{aligned}$$

2 | $\int_0^1 re^{\frac{r}{2}} dr$

$$\begin{aligned}\int_0^1 re^{\frac{r}{2}} dx &\implies r2e^{\frac{r}{2}} \int 2e^{\frac{r}{2}} dr \\ &= 2re^{\frac{r}{2}} \int 2e^{\frac{r}{2}} dr \\ &= 2re^{\frac{r}{2}} 4e^{\frac{r}{2}} \\ &= 4re^r \\ &\implies 4e\end{aligned}$$