

Each problem is worth 5 points. For full credit provide proper justification for your answer.

1. Find the indefinite integral $\int \left(t\sqrt{t} + \frac{1}{t\sqrt{t}} \right) dt$.

$$2^2 \cdot 2^5 = 2^7$$

$$\int t \cdot t^{1/2} + t^{-1} \cdot t^{-1/2} dt$$

$$\int t^{3/2} + t^{-3/2} dt$$

$$\frac{2}{5} t^{5/2} - 2t^{-1/2} + C$$

$$\boxed{\frac{2t^{5/2}}{5} - \frac{2}{\sqrt{t}} + C}$$

Great

2. Find the indefinite integral $\int \frac{e^x}{2+e^x} dx$.

$$\int \frac{e^x}{u} \frac{du}{e^x}$$

$$u = 2 + e^x$$

$$du = e^x dx$$

$$dx = \frac{du}{e^x}$$

$$\int \frac{1}{u} du = \ln|u| + C$$

$$= \ln|2 + e^x| + C$$

Great!