1. (3 points) Find the derivative:

\[
\frac{d}{dx} \int_{2x}^{3x} e^{t^2} dt = \;
\]

2. (2 points) Let \( f(t) = \arcsin(x) \). Compute the integral:

\[
\int_{0}^{1} f'(t) dt = \;
\]

3. (2 points) Evaluate:

\[
\int_{1}^{4} e^{x} \cos(e^{x}) dx = \;
\]

4. (3 points) Find the area of the region bounded by the curves \( y = \sin(x) \), \( y = \cos(x) \) and lines \( x = 0 \), \( x = \pi \).

Answer: ____________________