Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Find the derivative of \( y = \frac{x^2 + 4x + 3}{\sqrt{x}} \).

\[
y' = \frac{3}{2} x^{-\frac{1}{2}} + 2 x^{-\frac{3}{2}} - \frac{3}{2} x^{-\frac{3}{2}}
\]

Divide through first!

2. Find the derivative of \( f(x) = e^{x} \sqrt{x} \).

\[
f'(x) = e^{x} \cdot \sqrt{x} + e^{x} \cdot \frac{1}{2} x^{-\frac{1}{2}}
\]

\[\text{used } \text{Product Rule}\]

\[h(x)' = f' \cdot g + f \cdot g'
\]

3. Find the derivative of \( y = (r^2 - 2r)e^r \).

\[
y' = (2r - 2)e^r + (r^2 - 2r)(e^r)'
\]

\[\text{Great}\]