Each problem is worth 5 points. Show complete justification for full credit.

1. If $y = (r^2-2r)e^r$, find $y'$.

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

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

2. Find an equation of the line tangent to the curve $y = \frac{2x}{x+1}$ at the point (-2, 4).

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

\[ y'(-2) = \frac{2}{(-2+1)^2} = +2 = m \]

So, tangent line:

\[ y - 4 = +2(x + 2) \]

\[ y = +2x + 8 \]