

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

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

$$y' = (2r - 2)e^r + (r^2 - 2r)e^r$$

$$y' = r^2 e^r - 2e^r = (r^2 - 2)e^r$$

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:

$$y - 4 = +2(x - -2)$$

$$y = +2x + 8$$