

$$K_j(x) = K_g(h(x)) \cdot K_h(x) = \frac{-x^2(e^{-x^2})}{e^{-x^2}} \cdot \frac{x(-2x)}{+x} = -2x^2$$

$$\text{Verification} \Rightarrow K_f(x) = \frac{x e^{-x^2}}{e^{-x^2}} \cdot (-2x) = -2x^2 \checkmark$$

Q5 $F(b) = r$ $\frac{db}{dr} \frac{dr}{db}$

$$ar^2 + br + c = 0$$

$$2ar \left(\frac{dr}{db} \right) + r + b \left(\frac{dr}{db} \right) = 0 \Rightarrow (2ar + b) \left(\frac{dr}{db} \right) = -r$$

$$\Rightarrow \frac{dr}{db} = \frac{-r}{2ar + b} = \frac{-r}{\pm \sqrt{b^2 - 4ac}}$$

$$K(b) = \frac{b \cdot \frac{dr}{da}}{r} = \frac{b \cdot \frac{-r}{\sqrt{b^2 - 4ac}}}{r} = \frac{-b}{\sqrt{b^2 - 4ac}} = \frac{-ab}{x_1 - x_2}$$

poly add

Find difference in size = diff

Start at index diff and diff - diff

Add vectors until the end of vector is reached