Problem 24, Section 5.1

Solve $3^{x-x^2} = \dfrac{1}{9^x}$ for x.

Well, $\dfrac{1}{9^x} = \dfrac{1}{3^{2x}} = 3^{-2x}$.

Thus, $3^{x-x^2} = \dfrac{1}{9^x} \implies 3^{x-x^2} = 3^{-2x} \implies x - x^2 = -2x \implies x^2 - 3x = 0 \implies (x)(x-3) = 0 \implies x = 0, 3.$