

Ex 1 Consider the function $z = g(x, y) = yx^2 + y$. Sketch the following

(a) The trace of $g(x, y)$ at $y = -1$

(b) The trace of $g(x, y)$ at $x = -1$

(c) The level curve of $g(x, y)$ with $z = -1$

Ex 2 LotSW Incorporated produces two top-selling items: replicas of the sword Andúril and replicas of Jedi light sabres. Light sabre replicas cost \$25 each to produce while Andúril replicas cost \$35 each to produce. Light sabres sell for \$100 each while Andúril replicas sell for \$150 each. There is a fixed overhead cost of \$1500 associated with producing these items every month. Find the profit function and determine the profit obtained from producing and selling 50 swords and 75 light sabres.

Ex 3 Recall that the present value of an investment, B , at interest rate, r , compounded continuously, for t years is given by the formula $P(B, r, t) = Be^{-rt}$. Compute $P(2000, .05, 3)$ and interpret the value in context.