Important Notes

- A Form of a linear function is: $Y = a + bX$
- A Form of a non-linear quadratic function is: $Y = aX+bX^2$
- The Y-intercept is the value of Y when X equals 0.
- The X-intercept is the value of X when Y equals 0.
- The slope is the same along a straight line
- The slope can be positive, negative, or zero
- If the slope is zero, the straight line is horizontal with Y = intercept.
- The slope of a function depends on the units in which X and Y are measured.
- A concave graph could reflect the principle of diminishing returns.
- The marginal effect is the change in Y when one unit change in X (Also the slope of the function).
- The average effect is the ratio of Y to X at a particular value of X (the slope of a ray to a point).
- A vector has magnitude and direction.
- A scalar has magnitude (size) only

Important Definitions

A Ray: A portion of a line which starts at a point (e.g., point of origin) and goes off in a particular direction to infinity.

Important Rules:

$$Slope = \frac{Change\ in\ Y}{Change\ in\ X} = \frac{\Delta Y}{\Delta X}$$

- If Vector **A**=(a1,a2) & vector **B**=(b1,b2), if Vector **C=A+B, then C=(a1+b1,a2+b2)**
- If Vector **A**=(a1,a2) & vector **B**=(b1,b2), if Vector **C=A+ -B, then C=(a1-b1,a2-b2)**

Important Functions

- ✓ Marshallian Demand (dX_1): $X^*=dX_1(P_{X1}, P_{X2}, m)$
- ✓ Hicksian Demand (hX_1): $X^*=hX_1(P_{X1},P_{X2},U)$

Mathematical Economics
Chapter 1
No.2

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