PARTIAL ELASTICITIES

- Recall that if $y = f(x)$, then $e_x^y = \frac{dy}{dx} \times \frac{x}{y}$
- Now suppose that $z = f(x, y)$. Now the partial elasticities of z w.r.t. x and y are:
  - $e_x^z = \frac{\partial z}{\partial x} \times \frac{x}{z}$; and $e_y^z = \frac{\partial z}{\partial y} \times \frac{y}{z}$
- Note that these two elasticities can also be written as $\frac{\partial z}{\partial x} \div \frac{z}{x}$, i.e. marginal function (w.r.t. x) divided by average (w.r.t. x) and $\frac{\partial z}{\partial y} \div \frac{z}{y}$, i.e. marginal function (w.r.t. y) divided by average (w.r.t. y)
- **PARTIAL DEMAND ELASTICITIES**
- Suppose that demand is $q^d = f(p, p_z, y)$, where p_z, y are the price of another product and the income of consumers
- The other partial demand elasticities are:
  - price elasticity of demand, e^p
  - cross-price elasticity of demand, e^z
  - income elasticity of demand, e^y
- Do examples 17.5 and 17.6

OTHER PARTIAL ELASTICITIES

Production elasticities:

- Labour elasticity of production (elasticity of production w.r.t. labour) = $e^L = \frac{\partial q}{\partial L} \times \frac{L}{q} = \frac{MPL}{APL}$. This shows the (percentage) change in production due to a 1% change in labour input.
- Capital elasticity of production (elasticity of production w.r.t. capital) = $e^K = \frac{\partial q}{\partial K} \times \frac{K}{q} = \frac{MPK}{APK}$. This shows the (percentage) change in production due to a 1% change in capital input.