

Q-1. Solution: B.

Initial price quantity relationship:

$$Q_{Pizza}^D = 15 - 0.75P + 0.01 \times 750 - 0.25 \times 2.50 = 21.875 - 0.75P_{Pizza}$$

Resulting demand curve:

$$P_{Pizza} = 29.17 - 1.33Q_{Pizza}^D$$

Price quantity relationship at new income level

$$Q_{Pizza}^D = 15 - 0.75P_{Pizza} + 0.01 \times 1000 - 0.25 \times 2.50 = 24.375 - 0.75P_{Pizza}$$

Resulting demand curve:

$$P_{Pizza} = 32.5 - 1.33Q_{Pizza}^D$$

The slope of her demand curve for pizza will still be -1.33 even with the higher income effect will result in a parallel shift of the initial demand curve to the right.

PS: Demand curve is the graph of the inverse demand function.

Q-2. Solution: B.

A firm maximizes its revenue at the price (or quantity) where demand is unit elastic. This price or quantity is not the one that maximizes profit unless output can be increased at zero cost (no marginal costs).

Q-3. Solution: A

From the demand function:

Solve for Q_{pr}^d :

$$\Delta Q_{pr}^d / \Delta P_{pu} = 0.9 \text{ (the coefficient in front of } P_{pu} \text{)}$$

$$\begin{aligned} Q_{pr}^d &= 84 - 3.1 P_{pr} + 0.8 I + 0.9 P_{pu} \\ &= 84 - 3.1(38) + 0.8(100) + 0.9(18) \\ &= 62.4 \end{aligned}$$

At $P_{pr} = 38$, and $P_{pu} = 18$, the cross-price elasticity of demand

$$= (\Delta Q_{pr}^d / \Delta P_{pu}) (P_{pu} / Q_{pr}^d) = (0.9)(18 / 62.4) = 0.3$$

Q-4. Solution: C.

The negative sign on the coefficient for P_y indicates that X and Y have a negative cross-price elasticity of demand and are thus complements.

Q-5. Solution: A.

In the case of normal goods, the income and substitution effects are reinforcing, leading to an increase in the amount purchased after a drop in price.