



5. If an individual's preferences satisfy the properties of (i) completeness, (ii) more is better, (iii) transitivity, and (iv) convexity, which of the following statements is false?
- Indifference curves are ubiquitous.
  - Indifference curves are downward sloping.
  - Indifference curve cannot cross.
  - Indifference curves become steeper as we move down and to the right. They bow away from the origin or are concave to the origin.
6. Suppose an individual's marginal rate of substitution is  $MRS = MU_H/MU_F = 3F/H$  where F is the pounds of food and H is square feet of housing per month. Income is \$1,600 a month, the price of food ( $P_F$ ) is \$10 a pound, and the price of housing ( $P_H$ ) is \$60 per square foot. Which of the following statements must be true about the consumption bundle consisting of  $F = 70$  and  $H = 15$ ?
- The individual can increase satisfaction by consuming more housing and less food.
  - The individual can increase satisfaction by consuming more food and less housing.
  - The individual can afford to consume more food and more housing.
  - This is the individual's best feasible consumption bundle.

7. Consider the demand  $Q_D = 5,000 - 2M - 25P$  where  $M$  is monthly income. What is the income elasticity of demand if  $M = \$1,500$  and  $P = 50$ ?
- 1/4.
  - 1/4.
  - 4.
  - 4.
8. Consider the demand  $Q_X = 8,000 - 20P_Z - 50P_X$  where  $Q_X$  is the quantity of good X,  $P_Z$  is the price of good Z, and  $P_X$  is the price of good X. Suppose  $P_X = 80$  and  $P_Z = 100$ , which of the following statements must be true?
- Good Z is a substitute for good X.
  - Good Z is a complement for good X.
  - Good X is normal.
  - Good X is inferior.

9. Tyler's demand for ice cream is  $Q_T = 12 - 3P$ , while Mason's is  $Q_M = 6 - P$ .
- Find the market demand for ice cream if Tyler and Mason are the only two consumers in the market.
  - What is the price elasticity of demand when  $P = 2$ ?
  - At this price, is demand elastic, unit elastic, or inelastic?
  - If this price were to increase by a little bit, what would happen to the total revenues from ice cream sales?

- 10 The figure below illustrates the best feasible bundle of firecrackers and bottle rockets ( $F_0$  for firecrackers and  $R_0$  for bottle rockets) given current income ( $M_0$ ) and prices ( $P_{F0}$  for firecrackers and  $P_{R0}$  for bottle rockets).
- a) Illustrate how an increase in the price of bottle rockets changes the best feasible bundle of firecrackers and bottle rockets?
  - b) Illustrate the substitution and income effects?
  - c) Given the way you have drawn your figure, are bottle rockets a normal or inferior good?
  - d) Could an increase in the price of bottle rockets ever increase the demand for bottle rockets? Explain.

