

ANSWERS

MATCHING

1-d; 2-m; 3-g; 4-l; 5q; 6-h; 7-b; 8-n; 9-e; 10-f;
11-k; 12-a; 13-p; 14-c; 15j.

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MULTIPLE CHOICE

1. b See page 104.
2. a Substituting in the basic formula for elasticity gives $.01/0.1 = 0.1$. See page 105-106.
3. a Using the formula for the mid-point elasticity gives 2.99 (out of convention we always take the absolute value.) See pages 105-106.
4. b The price elasticity of demand of 2 means that for every 1% change in the price will occur a 2% change in the quantity demanded. To obtain a 12% increase in the quantity demanded means the price must fall by 6%. See the formula for elasticity on page 104.
5. a The revenue gain from the increase in price had to exceed the loss from the reduction in quantity, so the demand must be inelastic. See pages 113-115.
6. b When a good is price elastic then a price decrease will result in a proportionately larger increase in the quantity demanded and revenues rise. See pages 113-115.
7. a The elasticity changes along a straight line demand curve from highly elastic to highly inelastic. See page 110.
8. a A horizontal demand curve is perfectly elastic because the percentage change in quantity is infinite. See Figure 5-2 on page 109.
9. b Necessities tend to have few substitutes and the fewer the substitutes, the more inelastic the demand curve. See pages 111-112.
10. a The more specifically or narrowly a good is defined, the more substitutes it tends to have. See pages 111-112.
11. a The greater the time period under consideration, the greater the possibility for substitution. See pages 111-112.
12. b Elasticity of supply is the percent change in quantity divided by the percent change in price: $20\% / 25\% = 0.8$. See page 121.
13. a You can either calculate the elasticity (percent change in quantity divided by the percent change in price) or you can use the trick in the Knowing The Tools Box (any straight line supply curve that intersects the vertical axis is elastic). See page 112.
14. c You can either calculate the elasticity (percentage change in quantity divided by the percent change in price) or you can use the trick in the Knowing the Tools Box (any straight line supply curve going through the origin will have unitary elasticity.) See page 112.
15. a For a vertical supply curve the percent change in quantity becomes zero, so the elasticity becomes zero, making it perfectly inelastic. (109)
16. b See the definition of an inferior good on page 117.
17. d When the price of a good increases and this increases the demand for its substitute, then the cross-price elasticity of demand is positive. See pages 118-119.
18. b Price discrimination requires separating out consumers by their elasticities and charging more to individuals who have inelastic demands. See page 114-116.
19. b Since price rose significantly while quantity remained virtually unchanged either demand or supply is inelastic. Since price rose, either demand shifted out or supply shifted in. See pages 122-123.

11. Knowledge of elasticity enables us to determine to *what extent* there will be a change in the equilibrium quantity and the equilibrium price given a change in demand and supply. (122-123)

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PROBLEMS AND APPLICATIONS

1. Given that the $E_d = 0.5$, and the price falls by 10% then the quantity demanded will rise by 5%. [The trick is to multiply the E_d coefficient (0.5), or number, by the percentage change in the price (10) to get the percentage change in the quantity demanded (5). But remember, the law of demand tells us that the quantity demanded moves in the opposite direction from the change in the price.] If the price was to rise by 15% then the quantity demanded would fall by 7.5% ($0.5 \times 15 = 7.5$). (104)
2. Price elasticity of demand is defined in your text as the percent change in quantity demanded divided by the percent change in price. Demand is elastic if the price elasticity is greater than one (always drop the negative sign—take the absolute value); a rise in price will lower total revenue. Demand is inelastic if the price elasticity is less than one; a rise in price will increase total revenue. Demand is unit elastic if the price elasticity is equal to one; a rise in price leaves total revenue unchanged. (For each of the following, we use the mid-point elasticity unless specifically noted.)
 - a. Price elasticity of demand is $10\%/5\% = 2$. Since $2 > 1$, demand is elastic. Total revenue falls. (105-106, 115)
 - b. Price elasticity of demand is $|(144,000 - 160,000)/152,000| / [(12 - 10)/11] = 0.58$. Since $0.58 < 1$, demand is inelastic. Total revenue rises. (105-106, 114)
 - c. Price elasticity of demand is $|(1075 - 1000)/1037.5| / [(47.5 - 50)/48.75] = 1.41$. Since $1.41 > 1$, demand is elastic. Total revenue rises. (105-106, 114)
 - d. Price elasticity of demand is $|(80,000 - 100,000)/90,000| / [(600 - 500)/550] = 1.2$. Since $1.2 > 1$, demand is slightly elastic. Total revenue falls slightly. (105-106, 114)
3. It would charge the lower price, \$15.95, because a lower price will increase total revenue when demand is elastic. (114)
4.
 - a. Price elasticity of supply is $15\%/4\% = 3.75$. Since $3.75 > 1$. Supply is elastic. (105-106)
 - b. Price elasticity of supply is $[(5,300,000 - 5,000,000)/5,150,000] / [(110 - 100)/105] = 0.61$. Since $0.61 < 1$, supply is inelastic. (105-106)
 - c. Price elasticity of supply is $[(150,000 - 125,000)/137,500] / [(30 - 25)/27.5] = 1$. Since $1 = 1$, supply is unit elastic. (105-106)
5.
 - a. The income elasticity of demand is $[(37,500 - 30,000)/33,750] / [(12,000 - 10,000)/11,000] = 1.22$. Since $1.22 > 1$, ice cream cones are a luxury good. (116-118)
 - b. The income elasticity of demand is $[(60 - 50)/55] / [(100,000 - 120,000)/110,000] = -10$. Since $-1 < 0$, margarine is an inferior good. (116-118)
 - c. The income elasticity of demand is $[(75 - 80)/77.5] / [(18,000 - 20,000)/19,000] = 0.61$. Since $0 < 0.61 < 1$, summer cottages are a necessity. (116-118)
6.
 - a. The cross-price elasticity of demand is $[(4,000,000 - 3,000,000)/3,500,000] / [(12 - 9)/10.5] = 1$. Since $1 > 0$, pizzas and Big Macs are substitutes. (118-120)
 - b. The cross-price elasticity of demand is $[(20 - 15)/17.5] / [(2 - 4)/3] = -0.43$. Since $-0.43 < 0$, hot dogs and mustard are complements. (118-120)
7.
 - a. The price will fall considerably but quantity will not rise significantly, as shown in the graph (a) below. (122-123)

