

## CHAPTER THREE

### Answers to Self Test Questions

1.
  - a) Both the demand and supply increases so that the effect on **price is indeterminate** while **quantity traded increases**.
  - b) Both demand and supply decreases so that the effect on **price is indeterminate** while **quantity traded decreases**.
  - c) Supply increases while demand decreases so that **price decreases** while the effect on the **quantity traded is indeterminate**.
  - d) Demand increases and S decreases so that **price increases** while the effect on **quantity traded is indeterminate**.
  
2. Surplus. This will lead to both the price and the quantity traded being lower.
  
3.
  - a) A shortage of 12.  
An effective price ceiling must be imposed *below* the equilibrium price. The present equilibrium price is (approximately) \$1.10, and the equilibrium quantity traded is (approximately) 48. The price ceiling therefore will be at a price of \$0.90. At this lower price there will be a shortage of 12.
  - b) \$1.18 per litre.  
The quantity supplied at \$0.90 will be 44 thousand litres. The maximum illegal market price at which this quantity could be sold is (approximately) \$1.18 per litre.
  
4. No effect.  
A price ceiling set above the equilibrium price will leave the equilibrium price unchanged.
  
5.
  - a) \$17.5 million.  
Total sales revenue at equilibrium will be the price of \$3.50 times the quantity of 5 million kilos, which equals \$17.5 million.
  - b) The quantity demanded at \$4 will be **4 million**, and farmers will produce **6 million bushels**. The government must purchase the difference of **2 million bushels**.
  - c) \$8 million.  
The government must pay \$4 times 2 million, or \$8 million, to purchase the surplus.

6. a) An increase in supply would have no effect on the price if the demand curve were **horizontal**.  
 b) An increase in supply would have no effect on the quantity traded if the demand curve were **vertical**.

### Answers to Study Guide Questions

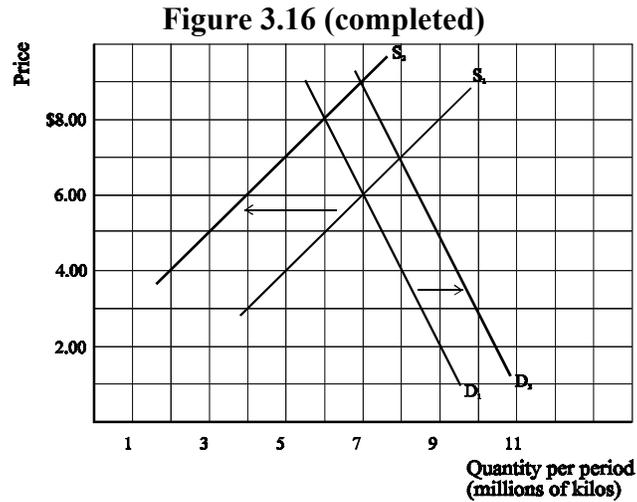
1. True
2. True
3. False: Price *will increase*.
4. False: An *increase* in demand or a *decrease* in supply.
5. False: It must be set above the equilibrium price.
6. True
7. True
8. False: Price floors cause *surpluses* and price ceilings cause *shortages*.
9. False: It will cause a *decrease* in price.
10. False: There are limits to the demand for any product.

- |       |       |       |       |       |
|-------|-------|-------|-------|-------|
| 11. a | 16. c | 21. b | 26. d | 31. e |
| 12. b | 17. a | 22. d | 27. a | 32. c |
| 13. a | 18. c | 23. b | 28. a | 33. a |
| 14. a | 19. c | 24. c | 29. a | 34. b |
| 15. b | 20. b | 25. c | 30. b | 35. e |

### 36. Key Problem

- a) Price = \$6; quantity traded = 7 (million) kilos.  
 This is where the demand and supply curves intersect.
- b) \$42 million
- c) \$48 million  
 At a price of \$8 per kilo, the quantity demanded will drop to 6. The total amount now paid by buyers is equal to 6 million kilos times \$8.
- d) Surplus: 3 million kilos; \$24 million  
 This surplus is the responsibility of the **government to buy**. (At \$8, the quantity demanded is 6 and the quantity supplied is 9.)

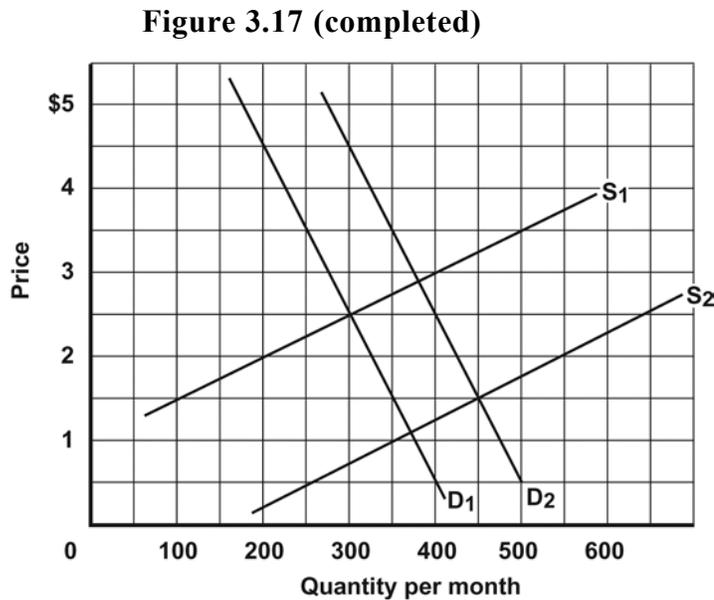
e)  $D_2$  is shown in the following figure:



**The price remains at \$8.** The quantity now traded increases to **7.5 million kilos**. Total spending is **\$60 million**.

- f) The new surplus is **1.5 million kilos** and the dollar amount is **\$12 million**.
- g) The new supply curve ( $S_2$ ) is shown on Figure 3.16. The new price is **\$9** and the new quantity traded is **7 million kilos**. The new total spending is **\$63 million**. Since this is equilibrium, there is **zero surplus** and the dollar amount of the surplus is **zero**.

37.  $D_2$  and  $S_2$  are shown on the following figure:



P: \$1.50; Q: 450

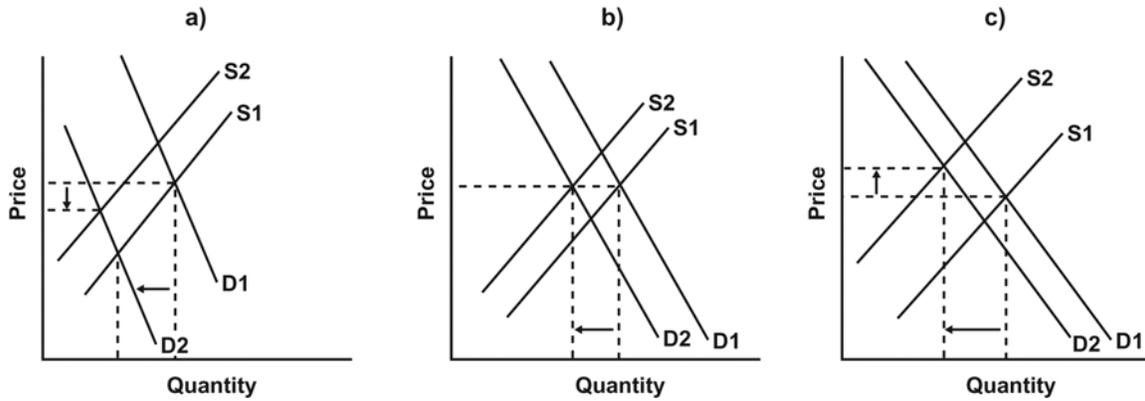
38. Price: \$3; Q: 60

39. a)  $P \downarrow$        $Q ?$   
 b)  $P \uparrow$        $Q ?$   
 c)  $P ?$        $Q \uparrow$   
 d)  $P \uparrow$        $Q ?$

40. a)  $P \downarrow$        $Q ?$   
 b)  $P ?$        $Q \downarrow$   
 c)  $P ?$        $Q \uparrow$   
 d)  $P \uparrow$        $Q ?$

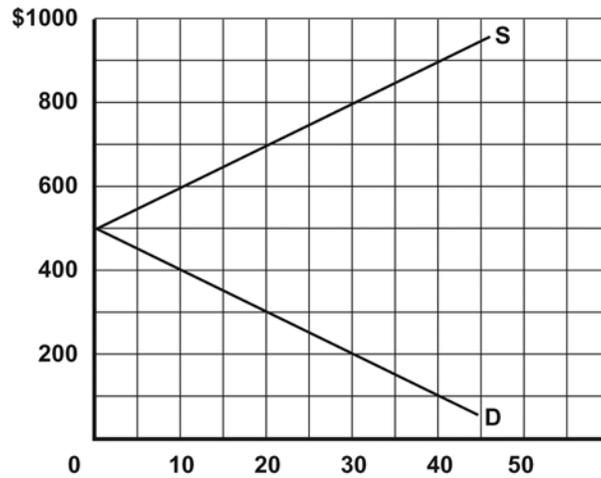
41. See the following figure:

**Figure 3.18 (completed)**



42. a) See the following figure:

**Figure 3.19 (completed)**



b) Zero

43. a) surplus of 80

b) shortage of 40

44. orange juice: price up; quantity indeterminate

cigarettes: price indeterminate; quantity down

beer: price down; quantity indeterminate

eye glasses: price indeterminate; quantity up

45. a) P: \$1.50; Q: 600

b) surplus of 300

c) shortage of 300

46. a) P: \$0.30; Q: 360

b) surplus of 160

c) surplus of 192

d) surplus of 128

47. a) P: \$0.63; Q: \$40 billion

b) shortage of \$10 billion

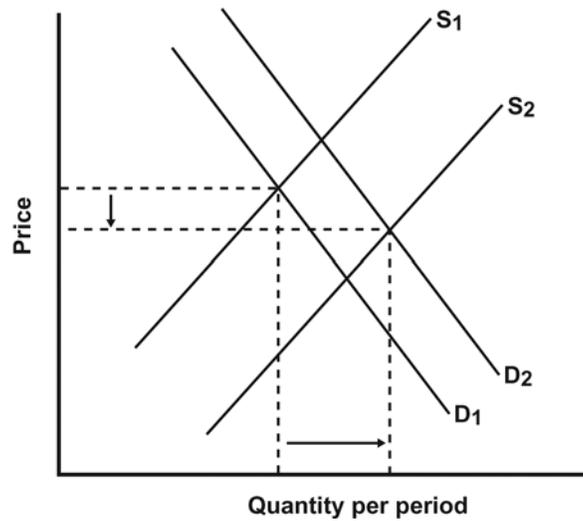
48. a) \$1.20

b) surplus of 200 000

The quota has no shortage or surplus but with a quota farmers receive less income than with a price floor.

49. See the following figure:

**Figure 3.23 (completed)**



50. a) The demand curve must be steeper than the supply curve.

b) Decrease

c) The surplus will disappear.