CHAPTER 2: Budget Constraint

TRUE/FALSE

1. If there are two goods with positive prices and the price of one good is reduced, while income and other prices remain constant, then the size of the budget set is reduced.

   ANS: F DIF: 1

2. If good 1 is measured on the horizontal axis and good 2 is measured on the vertical axis and if the price of good 1 is p_1 and the price of good 2 is p_2, then the slope of the budget line is $-p_2/p_1$.

   ANS: F DIF: 1

3. If all prices are doubled and money income is left the same, the budget set does not change because relative prices do not change.

   ANS: F DIF: 1

4. If there are two goods and if one good has a negative price and the other has a positive price, then the slope of the budget line will be positive.

   ANS: T DIF: 1

5. If all prices double and income triples, then the budget line will become steeper.

   ANS: F DIF: 1

6. If good 1 is on the horizontal axis and good 2 is on the vertical axis, then an increase in the price of good 1 will not change the horizontal intercept of the budget line.

   ANS: F DIF: 1

7. If there are two goods and the prices of both goods rise, then the budget line must become steeper.

   ANS: F DIF: 1

8. There are two goods. You know how much of good 1 a consumer can afford if she spends all of her income on good 1. If you knew the ratio of the prices of the two goods, then you could draw the consumer's budget line without any more information.

   ANS: T DIF: 1

9. A consumer prefers more to less of every good. Her income rises, and the price of one of the goods falls while other prices stay constant. These changes must have made her better off.

   ANS: T DIF: 1

10. There are 3 goods. The price of good 1 is −1, the price of good 2 is +1, and the price of good 3 is +2. It is physically possible for a consumer to consume any commodity bundle with nonnegative amounts of each good. A consumer who has an income of 10 could afford to consume some commodity bundles that include 5 units of good 1 and 6 units of good 2.

    ANS: T DIF: 2

11. A decrease in income pivots the budget line around the bundle initially consumed.

    ANS: F DIF: 1

MULTIPLE CHOICE

1. If she spends all of her income on breadfruits and melons, Natalie can just afford 9 breadfruits and 10 melons per day. She could also use her entire budget to buy 3 breadfruits and 12 melons per day. The price of breadfruits is 8 yen each. How much is Natalie's income per day?
    a. 313 yen
    b. 317 yen
    c. 309 yen
    d. 303 yen
    e. None of the above.

    ANS: E DIF: 1

2. If she spends all of her income on uglifruits and breadfruits, Maria can just afford 11 uglifruits and 4 breadfruits per day. She could also use her entire budget to buy 3 uglifruits and 8 breadfruits per day. The price of uglifruits is 6 pesos each. How much is Maria's income per day?
    a. 115 pesos
    b. 105 pesos
    c. 114 pesos
    d. 119 pesos
    e. None of the above.

    ANS: C DIF: 1

3. Harold lives on Doritos and seafood salads. The price of Doritos is 1 dollar per bag and the price of seafood salads is 2 dollars each. Harold allows himself to spend no more than 11 dollars a day on food. He also restricts his consumption to 6,500 calories per day. There are 1,500 calories in a bag of Doritos and 500 calories in a seafood salad. If he spends his entire money budget each day and consumes no more calories than his calorie limit, he can consume up to
    a. 3 bags of Doritos per day but no more.
    b. 1 bag of Doritos per day but no more.
    c. 4 seafood salads per day but no more.
    d. 4 bags of Doritos per day but no more.
    e. None of the above.

    ANS: A DIF: 2

4. Quincy lives on pretzels and seafood salads. The price of pretzels is 1 dollar per bag and the price of seafood salads is 2 dollars each. Quincy allows himself to spend no more than 14 dollars a day on food. He also restricts his consumption to 3,400 calories per day. There are 600 calories in a bag of pretzels and 200 calories in a seafood salad. If he spends his entire money budget each day and consumes no more calories than his calorie limit, he can consume up to
   a. 2 bags of pretzels per day but no more.
   b. 5 seafood salads per day but no more.
   c. 4 bags of pretzels per day but no more.
   d. 5 bags of pretzels per day but no more.
   e. None of the above.

   ANS: C DIF: 2

5. Clara spends her entire budget and consumes 5 units of *x* and 13 units of *y*. The price of *x* is twice the price of *y*. Her income doubles and the price of *y* doubles, but the price of *x* stays the same. If she continues to buy 13 units of *y*, what is the largest number of units of *x* that she can afford?
   a. 10
   b. 5
   c. 12
   d. 14
   e. There is not enough information to say.

   ANS: A DIF: 1

6. Maria spends her entire budget and consumes 5 units of *x* and 6 units of *y*. The price of *x* is twice the price of *y*. Her income doubles and the price of *y* doubles, but the price of *x* stays the same. If she continues to buy 6 units of *y*, what is the largest number of units of *x* that she can afford?
   a. 12
   b. 10
   c. 14
   d. 5
   e. There is not enough information to say.

   ANS: B DIF: 1

7. In year 1, the price of good *x* was $3, the price of good *y* was $2, and income was $90. In year 2, the price of *x* was $9, the price of good *y* was $6, and income was $90. On a graph with *x* on the horizontal axis and y on the vertical, the new budget line is
   a. flatter than the old one and lies below it.
   b. flatter than the old one and lies above it.
   c. steeper than the old one and lies below it.
   d. steeper than the old one and lies above it.
   e. None of the above.

   ANS: E DIF: 1

8. In year 1, the price of good *x* was $4, the price of good *y* was $1, and income was $70. In year 2, the price of *x* was $9, the price of good *y* was $2, and income was $70. On a graph with *x* on the horizontal axis and *y* on the vertical, the new budget line is
   a. steeper than the old one and lies below it.
   b. steeper than the old one and lies above it.
   c. flatter than the old one and lies below it.
   d. flatter than the old one and lies above it.

e. None of the above.

ANS: A DIF: 1

9. If she spends her entire budget, Betsy can afford 74 peaches and 9 pineapples. She can also just afford 14 peaches and 21 pineapples. The price of peaches is 17 cents. What is the price of pineapples in cents?
   a. 95 cents
   b. 5 cents
   c. 22 cents
   d. 85 cents
   e. None of the above.

   ANS: D DIF: 1

10. If she spends her entire budget, Heidi can afford 39 peaches and 12 pears. She can also just afford 24 peaches and 17 pears. The price of peaches is 9 cents. What is the price of pears in cents?
   a. 12 cents
   b. 37 cents
   c. 27 cents
   d. 3 cents
   e. None of the above.

   ANS: C DIF: 1

11. Isabella thrives on two goods: lemons and tangerines. The cost of lemons is 40 guineas each and the cost of tangerines is 20 guineas each. If her income is 320 guineas, how many lemons can she buy if she spends all of her income on lemons?
   a. 6
   b. 8
   c. 16
   d. 11
   e. None of the above.

   ANS: B DIF: 1

12. Georgina thrives on two goods: pears and bananas. The cost of pears is 30 pesos each and the cost of bananas is 15 pesos each. If her income is 180 pesos, how many pears can she buy if she spends all of her income on pears?
   a. 9
   b. 12
   c. 4
   d. 6
   e. None of the above.

   ANS: D DIF: 1

13. Will spends his entire income on 8 sacks of acorns and 8 crates of butternuts. The price of acorns is 9 dollars per sack and his income is 88 dollars. He can just afford a commodity bundle with A sacks of acorns and B crates of butternuts that satisfies the budget equation
   a. $9A + 4B = 88$.
   b. $18A + 4B = 176$.
   c. $11A + 2B = 88$.

d. $9A + 6B = 90$.
e. None of the above.

ANS: B DIF: 1

14. Eduardo spends his entire income on 9 sacks of acorns and 4 crates of butternuts. The price of acorns is 6 dollars per sack and his income is 90 dollars. He can just afford a commodity bundle with A sacks of acorns and B crates of butternuts that satisfies the budget equation
a. $6A + 13B = 92$.
b. $12A + 18B = 180$.
c. $8A + 9B = 90$.
d. $6A + 11B = 90$.
e. None of the above.

ANS: B DIF: 1

15. Harry thrives on two goods, paperback novels and bananas. The cost of paperback novels is 4 dollars each and the cost of bananas is 3 dollars per bunch. If Harry spent all of his income on bananas, he could afford 12 bunches of bananas per week. How many paperback novels could he buy if he spent all of his income on paperback novels?
a. 36
b. 48
c. 9
d. 16
e. None of the above.

ANS: C DIF: 1

16. Suppose that the prices of good x and good y both double and income triples. On a graph where the budget line is drawn with x on the horizontal axis and y on the vertical axis,
a. the budget line becomes steeper and shifts inward.
b. the budget line becomes flatter and shifts outward.
c. the budget line becomes flatter and shifts inward.
d. the new budget line is parallel to the old budget line and lies below it.
e. None of the above.

ANS: E DIF: 1

17. Suppose that the price of good x triples and the price of good y doubles while income remains constant. On a graph where the budget line is drawn with x on the horizontal axis and y on the vertical axis, the new budget line
a. is flatter than the old one and lies below it.
b. is flatter than the old one and lies above it.
c. crosses the old budget line.
d. is steeper than the old one and lies below it.
e. is steeper than the old one and lies above it.

ANS: D DIF: 1

18. While traveling abroad, Tammy spent all of the money in her purse to buy 5 plates of spaghetti and 6 oysters. Spaghetti costs 8 units of the local currency per plate and she had 82 units of currency in her purse. If *s* denotes the number of plates of spaghetti and *o* denotes the number of oysters purchased, the set of commodity bundles that she could just afford with the money in her purse is described by the equation
    a. $8s + 6o = 82$.
    b. $6s + 8o = 82$.
    c. $8s + 7o = 82$.
    d. $5s + 6o = 82$.
    e. There is not enough information to determine the answer.

    ANS: C DIF: 3

19. Billy Bob wants to gain some weight so that he can play football. Billy consumes only milk shakes and spinach. Milk shakes cost him $1 each and spinach costs $2 per serving. A milk shake has 850 calories and a serving of spinach has 200 calories. Billy Bob never spends more than $20 a day on food and he always consumes at least 8,000 calories per day. Which of the following is necessarily true?
    a. Billy Bob consumes at least 9 milk shakes a day.
    b. Billy Bob never consumes more than 6 servings of spinach a day.
    c. Billy Bob never consumes positive amounts of both goods.
    d. Billy Bob consumes only milk shakes.
    e. None of the above.

    ANS: B DIF: 2

20. Lars consumes only potatoes and herring. When the price of potatoes was 9 crowns per sack and the price of herring was 5 crowns per crock, he spent his entire income to buy 5 sacks of potatoes and 10 crocks of herring per month. Now the government subsidizes potatoes. Market prices haven't changed, but consumers get a subsidy of 5 crowns for every sack of potatoes consumed. To pay for this subsidy, the government introduced an income tax. Lars pays an income tax of 20 crowns per month. If *s* is the number of sacks of potatoes and *c* is the number of crocks of herring, what is Lars's new budget equation?
    a. $9s + 5c = 100$.
    b. $14s + 5c = 95$.
    c. $4s + 5c = 95$.
    d. $4s + 5c = 75$.
    e. $14s + 5c = 120$.

    ANS: D DIF: 2

21. If you spent your entire income, you could afford either 3 units of *x* and 9 units of *y* or 9 units of *x* and 3 units of *y*. If you spent your entire income on *x*, how many units of *x* could you buy?
    a. 21
    b. 16
    c. 12
    d. There is not enough information to determine the number of *x*.
    e. None of the above.

    ANS: C DIF: 1

22. If you spent your entire income, you could afford either 6 units of *x* and 13 units of *y* or 13 units of *x* and 6 units of *y*. If you spent your entire income on *x*, how many units of *x* could you buy?
    a. 19

b. 32
c. 24
d. There is not enough information to determine the number of *x*.
e. None of the above.

ANS: A DIF: 1

23. Bella's budget line for *x* and *y* depends on all of the following except
a. the amount of money she has to spend on *x* and *y*.
b. the price of *x*.
c. her preferences between *x* and *y*.
d. the price of *y*.
e. None of the above.

ANS: C DIF: 1

24. Your budget constraint for the two goods *A* and *B* is $12A + 4B = I$, where *I* is your income. You are currently consuming more than 27 units of *B*. In order to get 3 more units of *A*, how many units of *B* would you have to give up?
a. 0.33
b. 0.11
c. 3
d. 9
e. None of the above.

ANS: D DIF: 1

25. Your budget constraint for the two goods *A* and *B* is $8A + 4B = I$, where *I* is your income. You are currently consuming more than 18 units of *B*. In order to get 3 more units of *A*, how many units of *B* would you have to give up?
a. 6
b. 0.50
c. 0.17
d. 2
e. None of the above.

ANS: A DIF: 1

26. Young Alasdair loves lollipops and hates oatmeal. To induce him to eat enough oatmeal and to restrain him from eating too many lollipops, his mum pays him 10 pence for every quart of oatmeal that he eats. The only way that he can get lollipops is to buy them at the sweet shop, where lollipops cost 5 pence each. Besides what he earns from eating oatmeal, Alasdair gets an allowance of 10 pence per week. If Alasdair consumes only oatmeal and lollipops and if his consumption bundles are graphed with quarts of oatmeal on the horizontal axis and lollipops on the vertical axis, then Alasdair's budget line has a slope
a. of 2.
b. of less than –2.
c. of –2.
d. of 1/2.
e. greater than 2.

ANS: A DIF: 2

27. The Chuzzlewits have an income of $m per week. Let x be food and let y be all other goods. Let p_x be the price of food and p_y be the price of other goods. They can use food stamps to buy food at a price of $p_x(1 - s)$ for up to x^* units of food per week. If they buy more food than x^*, they have to pay the full price p_x for additional units. Their weekly income is greater than $p_x(1 - s)x^*$. The maximum amount of food that they can buy per week is
    a. $x^* + (m/p_x)$.
    b. $(m + x^*)/p_x$.
    c. $(m/p_x) + sx^*$.
    d. $m/(1 - s)p_x$.
    e. $(m + p_x)/(1 - s)p_x$.

    ANS: C DIF: 2

28. Edmund must pay $6 each for punk rock video cassettes, V. If Edmund is paid $24 per sack for accepting garbage, G, and if his relatives send him an allowance of $48, then his budget line is described by the equation
    a. $6V = 24G$.
    b. $6V + 24G = 48$.
    c. $6V - 24G = 48$.
    d. $6V = 48 - G$.
    e. None of the above.

    ANS: C DIF: 1

29. Edmund must pay $6 each for punk rock video cassettes, V. If Edmund is paid $24 per sack for accepting garbage, G, and if his relatives send him an allowance of $96, then his budget line is described by the equation
    a. $6V = 24G$.
    b. $6V + 24G = 96$.
    c. $6V = 96 - G$.
    d. $6V - 24G = 96$.
    e. None of the above.

    ANS: D DIF: 1

30. If you have an income of $40 to spend, commodity 1 costs $4 per unit, and commodity 2 costs $8 per unit, then the equation for your budget line can be written
    a. $x_1/4 + x_2/8 = 40$.
    b. $(x_1 + x_2)/12 = 40$.
    c. $x_1 + 2x_2 = 10$.
    d. $5x_1 + 9x_2 = 41$.
    e. $12(x_1 + x_2) = 40$.

    ANS: C DIF: 1

31. If you have an income of $40 to spend, commodity 1 costs $2 per unit, and commodity 2 costs $10 per unit, then the equation for your budget line can be written
    a. $x_1 + 5x_2 = 20$.
    b. $x_1/2 + x_2/10 = 40$.
    c. $(x_1 + x_2)/12 = 40$.
    d. $3x_1 + 11x_2 = 41$.

e. $12(x_1 + x_2) = 40$.

ANS: A DIF: 1

32. If you could exactly afford either 4 units of *x* and 24 units of *y*, or 9 units of *x* and 4 units of *y*, then if you spent all of your income on *y*, how many units of *y* could you buy?
a. 40
b. 20
c. 60
d. 13
e. None of the above.

ANS: A DIF: 1

33. If you could exactly afford either 5 units of *x* and 21 units of *y*, or 9 units of *x* and 5 units of *y*, then if you spent all of your income on *y*, how many units of *y* could you buy?
a. 57
b. 14
c. 25
d. 41
e. None of the above.

ANS: D DIF: 1

34. Murphy used to consume 100 units of *X* and 50 units of *Y* when the price of *X* was \$2 and the price of *Y* was \$4. If the price of *X* rose to \$4 and the price of *Y* rose to \$9, how much would Murphy's income have to rise so that he could still afford his original bundle?
a. \$700
b. \$450
c. \$350
d. \$1,050
e. None of the above.

ANS: B DIF: 1

35. Murphy used to consume 100 units of *X* and 50 units of *Y* when the price of *X* was \$2 and the price of *Y* was \$4. If the price of *X* rose to \$3 and the price of *Y* rose to \$8, how much would Murphy's income have to rise so that he could still afford his original bundle?
a. \$750
b. \$250
c. \$300
d. \$500
e. None of the above.

ANS: C DIF: 1

36. This weekend, Martha has time to read 40 pages of economics and 30 pages of sociology. Alternatively, she could read 30 pages of economics and 50 pages of sociology. Which of these equations describes all combinations of pages of economics, *E*, and sociology, *S*, that she could read over the weekend?
a. $E + S = 70$.
b. $E/2 + S = 50$.
c. $2E + S = 110$.

d. $E + S = 80$.
e. All of the above.

ANS: C DIF: 1

37. This weekend, Martha has time to read 40 pages of economics and 30 pages of sociology. Alternatively, she could read 10 pages of economics and 90 pages of sociology. Which of these equations describes all combinations of pages of economics, *E*, and sociology, *S*, that she could read over the weekend?
a. $E/2 + S = 50$.
b. $E + S = 100$.
c. $E + S = 70$.
d. $2E + S = 110$.
e. All of the above.

ANS: D DIF: 2

38. Ads in a slick business magazine are read by 300 lawyers and 1,000 M.B.A.s. Ads in a consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,000 to spend on advertising, the price of ads in the business magazine were $500, and the price of ads in the consumer magazine were $250, then the combinations of M.B.A.s and lawyers whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points
a. (3, 000, 3, 600) and (1, 800, 6, 000).
b. (3, 600, 4, 200) and (1, 800, 7, 200).
c. (0, 3, 600) and (1, 800, 0).
d. (3, 600, 0) and (0, 7, 200).
e. (2, 400, 0) and (0, 6, 000).

ANS: A DIF: 2

39. Ads in a slick business magazine are read by 300 lawyers and 1,000 M.B.A.s. Ads in a consumer publication are read by 250 lawyers and 300 M.B.A.s. If Harry had $3,750 to spend on advertising, the price of ads in the business magazine were $500, and the price of ads in the consumer magazine were $250, then the combinations of M.B.A.s and lawyers whom he could reach with his advertising budget would be represented by the integer values along a line segment that runs between the two points
a. (4, 500, 0) and (0, 9, 000).
b. (3, 750, 4, 500) and (2, 250, 7, 500).
c. (0, 4, 500) and (2, 250, 0).
d. (4, 500, 5, 250) and (2, 250, 9, 000).
e. (3, 000, 0) and (0, 7, 500).

ANS: B DIF: 2

40. In the economy of Mungo, discussed in your workbook, there is a third person called Ike. Ike has a red income of 92 rcus and a blue income of 20 bcus. (Recall that red prices are 2 rcus [red currency units] per unit of ambrosia and 6 rcus per unit of bubble gum. Blue prices are 1 bcu [blue currency unit] per unit of ambrosia and 1 bcu per unit of bubble gum. You have to pay twice for what you buy, once in red currency and once in blue currency.) If Ike spends all of his blue income but not all of his red income, then he consumes
a. at least 13 units of bubble gum.
b. at least 7 units of ambrosia.
c. exactly twice as much bubble gum as ambrosia.
d. at least 17 units of bubble gum.

e. equal amounts of ambrosia and bubble gum.

ANS: D DIF: 2

41. In the economy of Mungo, discussed in your workbook, there is a third person called Ike. Ike has a red income of 94 rcus and a blue income of 25 bcus. (Recall that red prices are 2 rcus [red currency units] per unit of ambrosia and 6 rcus per unit of bubble gum. Blue prices are 1 bcu [blue currency unit] per unit of ambrosia and 1 bcu per unit of bubble gum. You have to pay twice for what you buy, once in red currency and once in blue currency.) If Ike spends all of his blue income but not all of his red income, then he consumes
a. at least 14 units of ambrosia.
b. at least 11 units of bubble gum.
c. exactly twice as much bubble gum as ambrosia.
d. at least 15 units of bubble gum.
e. equal amounts of ambrosia and bubble gum.

ANS: A DIF: 2

42. Deadly Serious, II, studying for his M.B.A., consumes only two goods, Wheaties and pens. Each pen costs $1. Each box of Wheaties costs $2 but has a free pen inside. Pens can be discarded at no cost. If we draw Serious's budget set with pens plotted on the horizontal axis, then his budget set will be bounded by two line segments with slopes
a. zero and −1.
b. zero and −2.
c. zero and −0.5.
d. zero and infinity.
e. zero and +2.

ANS: A DIF: 2

43. Suppose there are two goods, the prices of both goods are positive, and a consumer's income is also positive. If the consumer's income doubles and the price of both goods triple,
a. the consumer's budget line gets steeper and shifts inward.
b. the slope of the consumer's budget line does not change but the budget line shifts outward away from the origin.
c. the consumer's budget line gets steeper and shifts outward.
d. the slope of the consumer's budget line does not change but the budget line shifts inward toward the origin.
e. the consumer's budget line gets flatter and shifts inward.

ANS: D DIF: 2

44. Thomas consumes coffee (C) and doughnuts (D). His budget line was described by the equation $D = 20 - 2C$. At a later time, his budget line could be described by the equation $D = 10 - C$. The change between the earlier budget line and the later could be explained by the fact that
a. the price of coffee and Thomas's income both increased.
b. the price of coffee increased and Thomas's income decreased.
c. the price of coffee decreased and Thomas's income increased.
d. the price of coffee and Thomas's income both decreased.
e. Thomas's utility for doughnuts decreased.

ANS: B DIF: 2

PROBLEM

1. Perry lives on avocados and beans. The price of avocados is $10, the price of beans is $5, and his income is $40. Show Perry's budget line on a graph with avocados on the horizontal axis and beans on the vertical axis. Label the point where the budget line hits the horizontal axis *A* and the point where the budget line hits the vertical axis *B*. Next to these labels, write down the number of avocados purchased at *A* and the number of beans purchased at *B*. Draw another budget line showing what Perry's budget would be if his income doubled, the price of avocados doubled, and the price of beans stayed the same. Label the point where this line hits the vertical axis *C* and the point where it hits the horizontal axis *D*. Next to these labels write the number of avocados at *C* and the number of beans at *D*.

   ANS:
   At A there are 4 avocados and at B there are 8 units of beans. At C there are 4 avocados and at D there are 16 units of beans.

   DIF: 1

2. Brenda likes hot dogs and Coca-Cola. Hot dogs cost $1 each and Cokes cost $.50 per bottle. There is a special promotion for Coke that will last for one month. If Brenda sends in the bottle tops from the Cokes she drinks during the next month, she will get a refund of $.20 for every bottlecap beyond the first 12 that she returns. For example, if she returns 25 bottle caps she will get back $2.60 = $.20 (25 − 12). Brenda has $40 to spend on hot dogs and Coke during the next month. Draw her budget line with Coke on the horizontal axis and hot dogs on the vertical axis. Find the points where the budget line hits the axes and the point where it has a kink. At each of these three points write down the quantities of each good consumed.

   ANS:
   The budget line runs from (0, 40) on the vertical axis to a kink point (12, 34) and from (12, 34) to about (125.3, 0).

   DIF: 2

3. Felicity is studying economics and political science. She can read 30 pages of political science per hour but only 5 pages of economics per hour. This week she has a 50-page assignment in economics and a 150-page assignment in political science. Because of sorority rush, she cannot devote more than 10 hours to studying these subjects this week. She realizes she cannot complete all of her assignments but is determined to complete at least 30 pages of her economics reading. Draw a graph with pages of economics on the horizontal axis and pages of political science on the vertical axis. On this graph, show the possibilities that are consistent with the constraints that Felicity has imposed on herself. (She is allowed to read ahead in either subject.) Label key points on your graph with their numerical values.

   ANS:
   Anything in the triangle bounded by (0, 300), (30, 120), and (30, 0) satisfies these constraints.

   DIF: 2

4. Ed Moore and his family live in a city with many private schools and one public school. The Moores are thinking of sending their only child to private school because they would like a school that has more teachers and other resources per student than the local public school. The Moores must pay taxes to support local public schools whether or not their child goes to private school. There is such a variety of private schools that the Moores can get just about any level of inputs per student by choosing the appropriate private school. Tuition in the private schools equals expenditure per student. Draw a diagram to show the Moores' budget constraint. Put expenditures per student in the child's school on the horizontal axis and other goods on the vertical.

   ANS:
   One point is (x, d), where x is expenditures per pupil in public school and d is disposable income. The rest of the budget is a line with slope -1 from ($2s$, $\mathrm{d} - x$) to the x axis.

   DIF: 3