1. When there is an increase in income, the budget line

a. has a steeper slope.

b. has a flatter slope.

c. shifts to the right with no change in slope.

d. shifts to the left with no change in slope.

1. Since the slope of the budget line is the negative of the ratio of the prices of the two goods, if only income changes, the slope of the budget line does not change. As income increases, the consumer's consumption possibilities and the budget line shift outward, or to the right. **Answer: C.**

2. If the price of both goods double and income doubles, the budget line will

a. shift to the right.

b. shift to the left.

c. be steeper.

d. will not change.

2. If both prices and income double, the budget line is unaffected. Answer: D.

3. An indifference curve shows all the consumption bundles

a. that an individual can purchase with a given income.

b. that yield the same total utility for an individual.

c. that yield the same marginal utility.

d. that have the same marginal rate of substitution.

3. An indifference curve shows all the consumption bundles that yield the same total utility for an individual. It does not show the combinations that an individual can purchase (that is the budget line), the consumption bundles do not yield the same marginal utility, and the marginal rate of substitution usually diminishes as we move down an indifference curve. **Answer: B.**

4. If indifference curves are convex, then we know that they

a. get flatter as you move down the curves to the right.

b. are downward-sloping straight lines.

c. may cross but only at consumption bundles that have small amounts of both goods.

d. will never be tangent to a budget line.

4. If an indifference curve is convex, then as you move down an indifference curve the curve gets flatter. **Answer: A.**

5. Sam the swimmer enjoys swimming laps in an outdoor pool during the summer. This summer it has rained a lot and Sam has not been able to swim as many laps as he usually does. Sam's marginal utility per lap this year compared with last year is a. higher.

b. lower.

c. about the same.

d. impossible to determine.

5. Due to the principle of diminishing marginal utility, as Sam swims fewer laps this year than last, his marginal utility per lap this year must be higher than it was last year. **Answer: A.**

Problem

1. Juan Ramon eats tacos and enchiladas for lunch every day. Juan Ramon has \$18 per week to spend on lunch. Enchiladas cost \$2 each and tacos cost 50 cents each. The following tables

show three of his indifference curves for tacos and enchiladas each week. Plot the

three indifference curves with the number of tacos per week on the Y axis and the number of enchiladas per week on the X axis.

Indifference Enchiladas	Curve 1 Tacos	Indifference Enchiladas	Curve 2 Tacos	Indifference Enchiladas	Curve 3 Tacos
2	32	3	32	4	32
3	16	4	21	5	24
4	11	5	16	6	19
5	8	6	13	7	16
6	6	7	11	8	14
7	5	8	10	9	12.5
8	4.6	9	9.5		
9	4				



a. What is the equation for Juan Ramon's budget line? What is the vertical intercept of the budget line? What is the horizontal intercept of the budget line? What is the slope of the budget line?

a. Juan Ramon's budget line is

 $18.00 = (2.00 \cdot \text{enchiladas}) + (0.50 \cdot \text{tacos})$

The vertical intercept is 36; it is how many tacos Juan Ramon can eat if he only eats tacos (= 18/50.50). The horizontal intercept is 9; it is how many enchiladas Juan Ramon can eat if he only eats enchiladas (= 18/52). The slope of the budget line is -4, or minus the ratio of the price of an enchilada to the price of a taco (= -2.00/50.50 = -4).

b. Plot the budget line on the indifference curve map in Problem 1.

b. The following figure shows Juan Ramon's budget line and the indifference curve map for enchiladas and tacos.



c. Which indifference curve yields the highest level of utility?c. Indifference Curve 3 (*I*₃) yields the highest level of utility.

d. Do the indifference curves illustrate the four properties that we associate with indifference curves? Are tacos and enchiladas ordinary goods for Juan Ramon? **d.** The map does show all four properties usually associated with indifference curves: they do not cross, those farther away from the origin yield a higher level of utility, they are downward-sloping, and they are convex to the origin. Since the indifference curves for tacos and enchiladas share all four properties, they are ordinary goods.

e. What is the marginal rate of substitution between the different consumption bundles on Indifference Curve 2? Does Indifference Curve 2 show a diminishing marginal rate of substitution?

e. The marginal rates of substitution along Indifference Curve 2 are shown in the following table. The marginal rate of substitution is the slope of the indifference curve, rise/run = $\otimes T / \otimes E$. The indifference curve does show diminishing marginal rates of substitution; as Juan Ramon consumes more enchiladas, the marginal rate of substitution between enchiladas and tacos in absolute value falls.

Enchiladas	Tacos	Marginal Rate of Substitution
3	32	11
4	21	
5	16	
6	13	3
7	11	
8	10	1
9	9.5	0.5