**College Algebra 1**

**6.5 Linear Inequalities**

***Objective: To graph linear inequalities with two variables***

***To use linear inequalities when modeling real-world situations***

Starter:

1. Coins. You have a total of 21 coins, all nickels and dimes. The total value is $1.70. How many nickels and how many dimes do you have?
2. Without solving, tell which method you would choose to solve each system: graphing, substitution, or elimination. Explain your answer.
   1. b.



Why do we need linear inequalities?

You are buying paperback and hardcover books at a book sale. You can spend at most $20. What are the possible combinations of paperback and hardcover books that you can buy?

*Linear inequalities help us with problems where there is no one correct answer but many answers that work.*

Linear Inequality, with two variables:

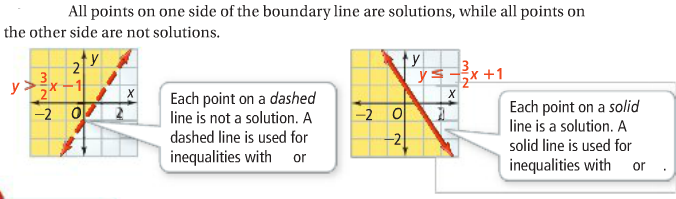
Solution of a Linear Inequality:

**Problem 1. Identifying Solutions of a Linear Inequality**

Is the ordered pair a solution of ?

1. (1,2) B. (-3,-7)

You Try! Is (3,6) a solution of



**Problem 2.** **Graphing an Inequality with Two Variables**

What is the graph of

****You try! What is the graph of

An inequality with one variable can be graphed on a number line or in the coordinate plane. The boundary line will be a horizontal or vertical line.

**Problem 3. Graphing a Linear Inequality with One Variable**

What is the graph of each inequality on the coordinate plane?

1. **** B.

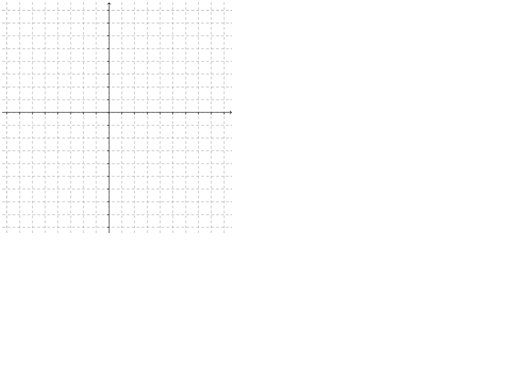
****You try! Graph the inequality

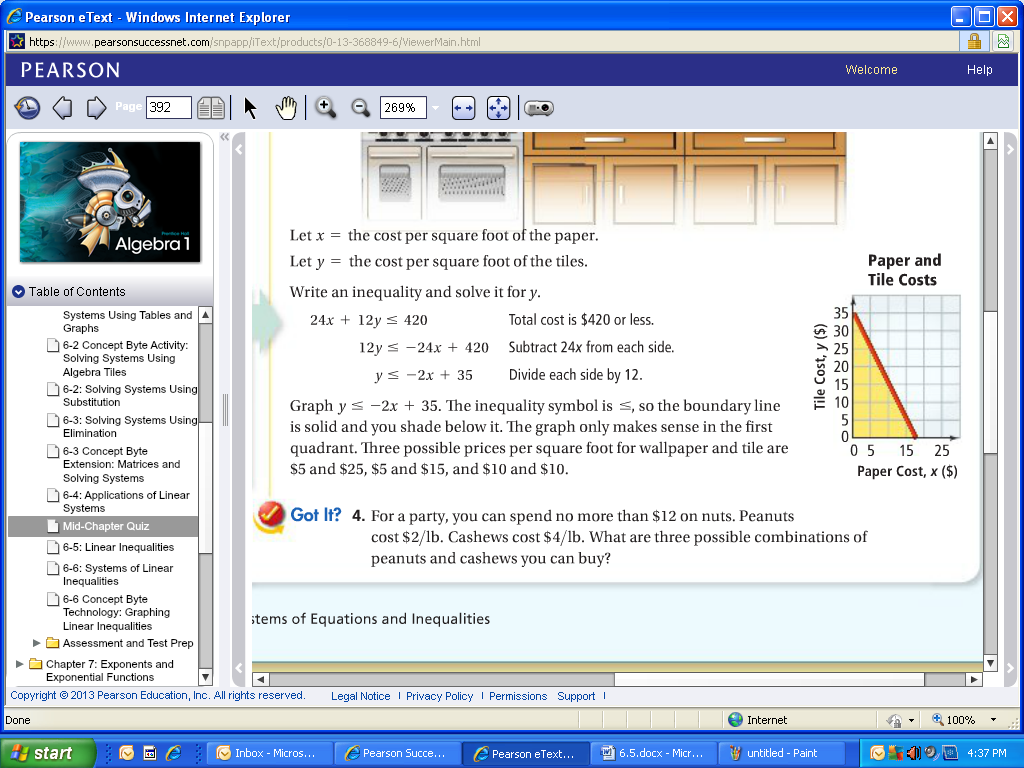
1. B.

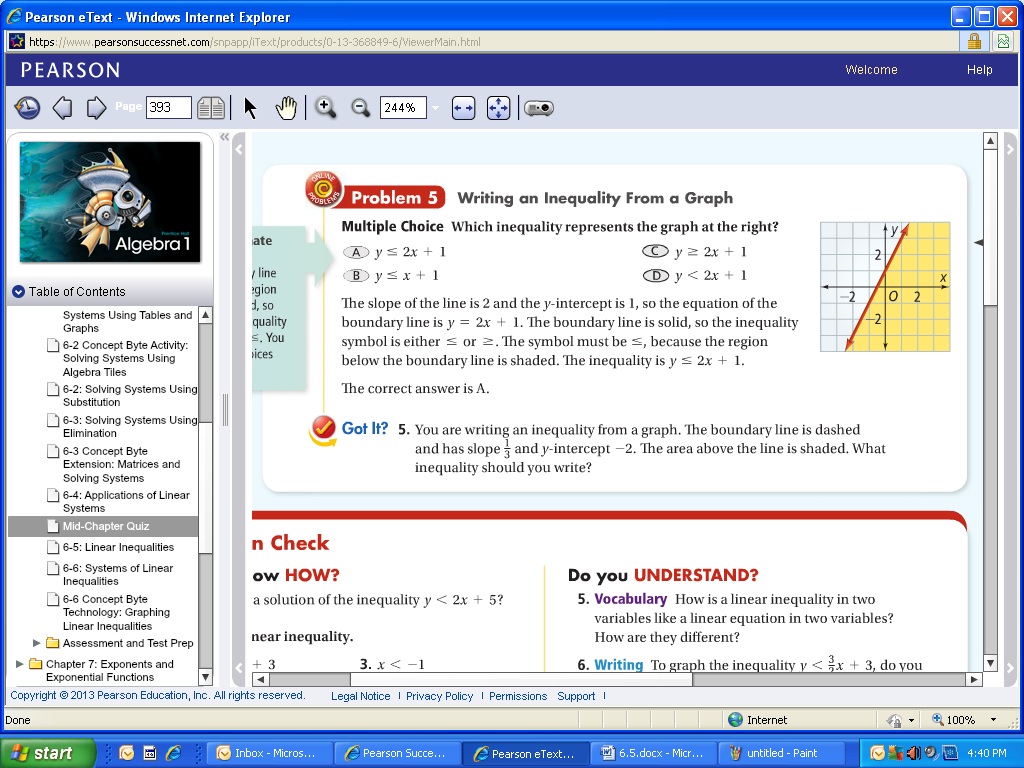
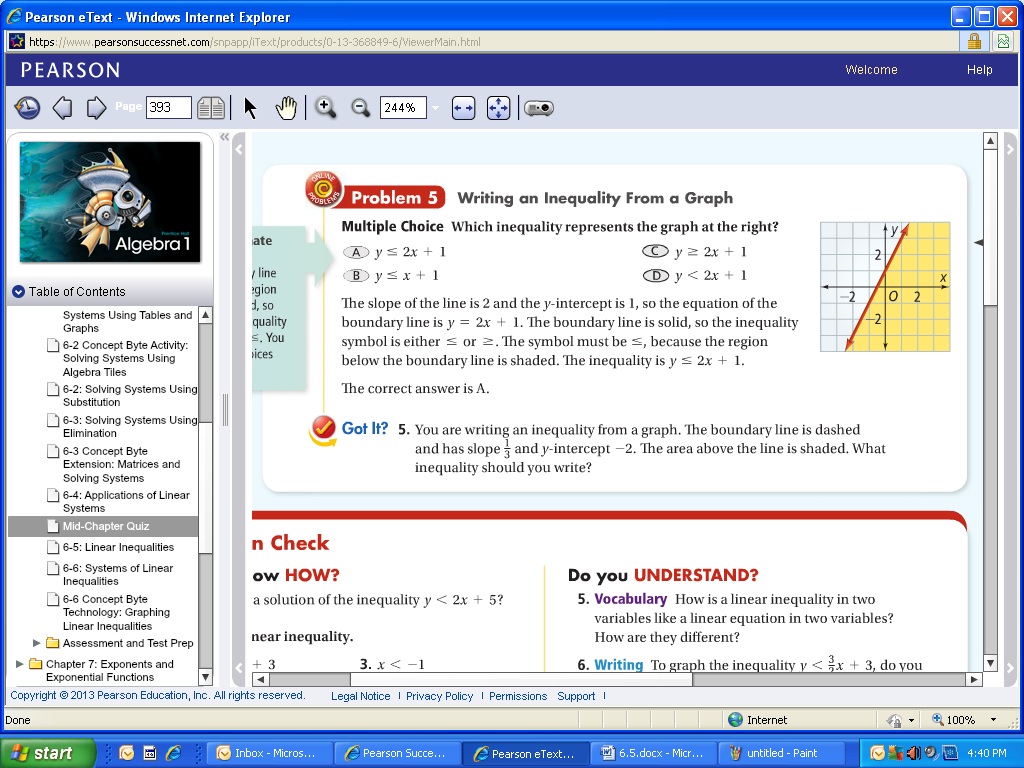
Let x=

Let y=

Write inequality, solve for y, and graph.



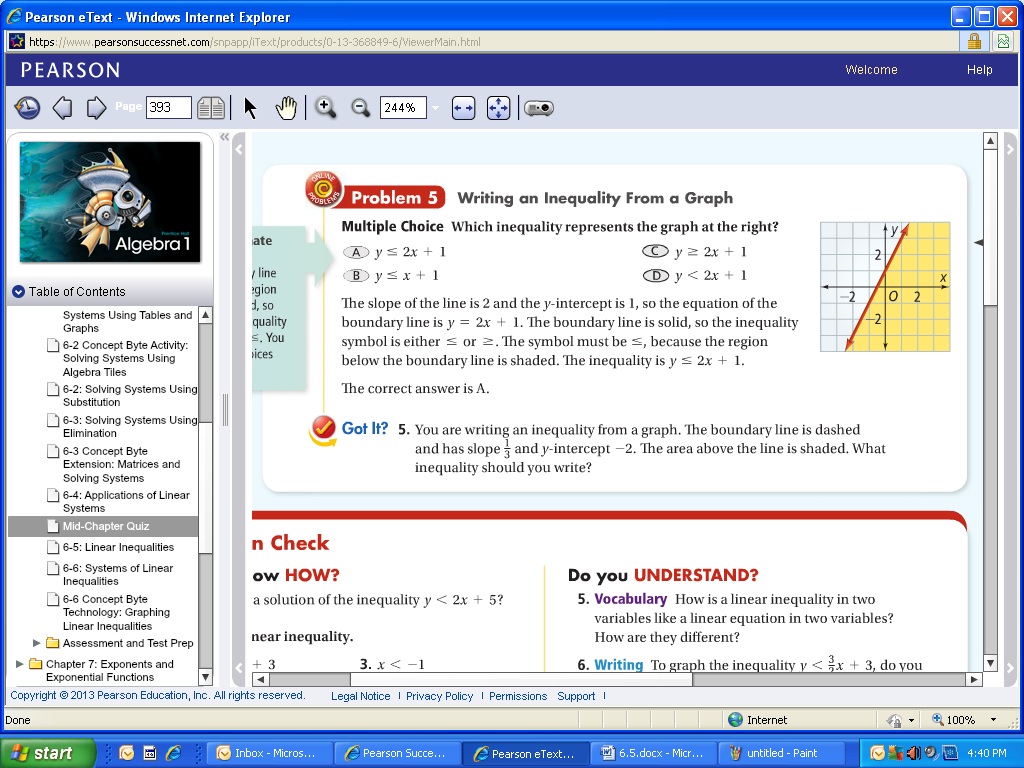
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Which choices can you eliminate first? Why?

Simple Trick: If the inequality is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the line.

If the inequality is , then you will shade \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the line.

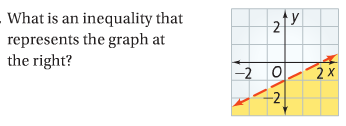
You Try!



2. 

a.  b.

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1. 

HW: p.397 # 8-29 ODDS