

## Homework #1B

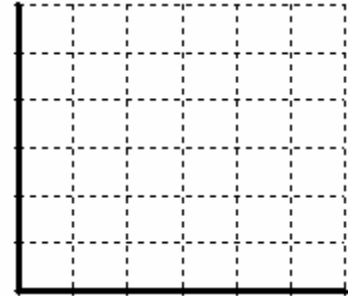
### More Math Review Problems

1. Graph these equations (placing Y on the vertical axis and X on the horizontal axis):

- $Y = 2X + 2$
- $Y = 4X + 2$

Comparing the two equations, which is different: the slope or the Y-intercept? How is it different? Are the lines parallel or do they intersect?

X	Y(1st)	Y(2nd)

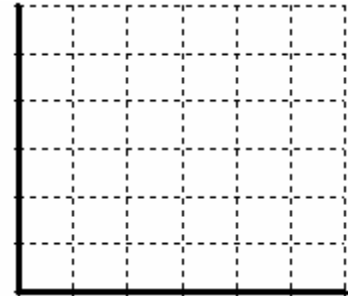


2. Graph these equations (placing Y on the vertical axis and X on the horizontal axis):

- $Y = 2 + 2X$
- $Y = 2 - 2X$

Comparing the two equations, which is different: the slope or the Y-intercept? How is it different? Are the lines parallel or do they intersect?

X	Y(1st)	Y(2nd)



3. Graph these equations (placing Q on the vertical axis and P on the horizontal axis):

- $Q = 4 + 2P$
- $Q = 2 + 2P$

Comparing the two equations, which is different: the slope or the Q-intercept? How is it different? Are the lines parallel or do they intersect?

P	Q(1st)	Q(2nd)

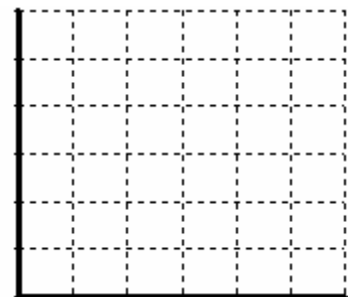


4. Graph these equations (placing Q on the vertical axis and P on the horizontal axis):

- $Q = 4 - 2P$
- $Q = 2 + 2P$

These two equations have different slopes and different Q-intercepts. Do the lines intersect? If so, can you find the value of P and Q at which they intersect?

P	Q(1st)	Q(2nd)



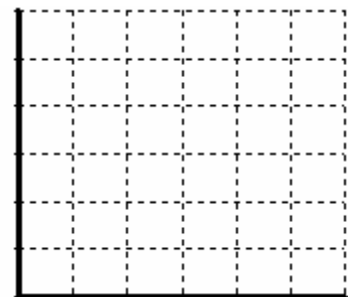
If demand curves slope down and supply curves slope up, then which of these two equations resembles a demand curve? Which resembles a supply curve?

5. *Solve these two equations for P.* Then graph the new equations by placing P on the vertical axis and Q on the horizontal axis:

- $Q = 4 - 2P$
- $Q = 2 + 2P$

Do the lines intersect? If so, can you find the value of P and Q at which they intersect?

Q	P(1st)	P(2nd)



6. The Law of Demand says that consumers purchase more of a good when its price is lower and they purchase less of a good when its price is higher. Can you give that statement a mathematical interpretation? (*Hint:* Does price depend on quantity purchased? or does quantity purchased depend on price?)

Is price an independent variable or a dependent variable? Is quantity purchased an independent variable or a dependent variable? What is the difference between a dependent variable and an independent variable?

On which axis (the vertical or horizontal) do mathematicians usually place the independent variable? On which axis do mathematicians usually place the dependent variable?

When economists draw supply and demand diagrams, they usually place price on the vertical axis and quantity purchased on the horizontal axis. Why is that “wrong”?

7. (A question about percentages)  $0.750 = \underline{\hspace{1cm}}\%$

8. (A question about fractions)  $\frac{2}{3} = \underline{\hspace{1cm}}\%$