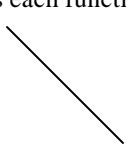


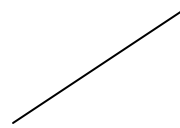
1) Each of the function in the following table is increasing or decreasing in different way. Which of the graphs below best fits each function



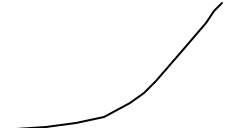
Graph A



Graph B



Graph C



Graph D

t	$g(t)$	$h(t)$	$k(t)$	$f(t)$
1	20	2	25	12
2	30	4	23	22
3	42	6	21	30
4	58	8	19	35
5	75	10	17	37
Graph				

2) Determine whether each of the following tables of values could correspond to a linear function or exponential function, or neither. If it is linear or exponential, find the formula for the function and define it as: Increasing, Decreasing, Growing, or Decaying.

t	$g(t)$	$h(t)$	$k(t)$
0	12	10	30
1	9	14	25.5
2	6	19.6	21.675
3	3	27.44	18.42375
Function Type: Exponential, Linear or Neither			
Increase, Decrease Decay, Growth?			
Formula			
Estimate each at $t = 10$			

3) A \$ 30,000 truck has a resale value of \$10,000 ten years after it was purchased.

- 1) Find the formula of the value of the truck as a function of time
- 2) Sketch a graph of the value
- 3) When will the value of the truck be \$0?



- 4) Suppose a town has a population of 2000. Fill in the values of the population in the table if:
- each year, the town has an absolute growth of 50 people per year.
 - each year, the town has a relative growth of 10% per year.

Year	0	1	2	3
Population (absolute rate of 50)	2000			
Population (relative rate of 10%)	2000			

-
- 5) Assume that the price of an airline ticket rose from 200 in 1970 to 400 in 1990 (*20 years later*). Let t be the number of years since 1970.

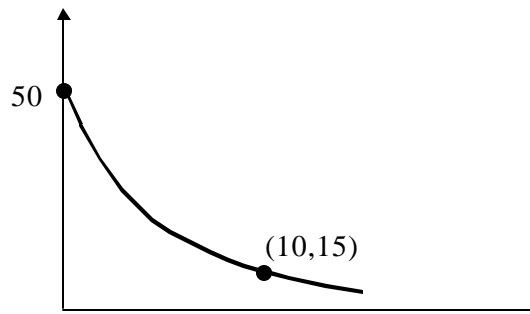
a) Find the equation if the increase in the price has been linear

b) Find the equation if the price has been exponential (use $P = P_0 a^t$ and find the value of a)

c) Fill the following table

t	Linear Growth price	Exponential Growth price
0	200	200
20	400	400
30		

-
- 6) Give a possible formula for the following function:



7) According to a survey, the number of people (N) attending concerts in an arena is given in the following table:

Price (P)	10	15	20	25
Number of people (N)	200	150	100	50

a) Find the linear equation which gives the price as a function of number of people (*price depends on number of people*)

b) Find the linear equation which gives the number of people as a function of price (*number of people depends on price*)

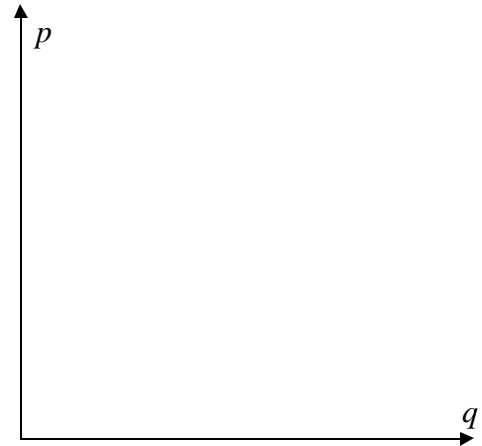
8) Suppose that the demand and Supply function for a product is given by:

$$q = -p + 8 \quad \text{and} \quad q = 2p + 2$$

where p is the unit price in \$ of the product.

a) Find the equilibrium point and the quantity of the product

b) graph the two functions, **label** the demand and supply function and **show** the shortage and surplus area



9) Solve for t for each of the following equations (you must show your work):

a) $3e^{4t} = 2e^{2t}$

b) $5(3^t) = 2(6^t)$

c) $\ln(t - 1) = 0$

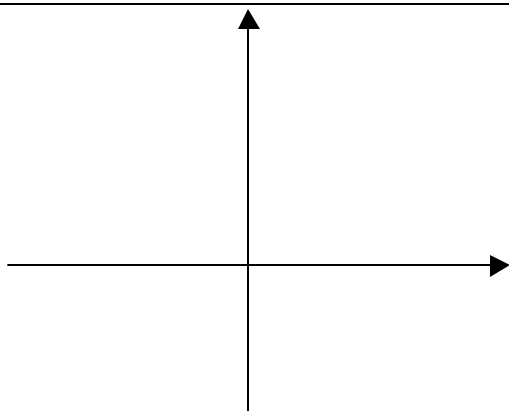
d) $\ln(2t + 1) + \ln(2t - 1) = 0$

Algebra Review Problems:

1. Solve for x : $\frac{2}{x^2 - 1} - \frac{2}{x + 1} = \frac{-1}{1 - x}$

2. Solve for x (use the quadratic formula): $x^2 - 8x = -10$

3. Graph the following function: $y = 5 - x^2$



4. Find the x -intercept for: $y = -x^2 + x + 20$

5. Match the graphs with the equations:

a) $y = 0.5x + 2$ is best represented by line:

b) $y = x - 4$ is best represented by line:

c) $y = -0.7x + 3$ is best represented by line:

d) $y = -x - 4$ is best represented by line:

