Homework 14 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. State whether the following functions are linear according to the definition of a linear function or not.
	1. $f\left(x\right)= x^{2}$
	2. $g\left(x\right)= 2x+3$
	3. $h\left(x\right)= 3^{x}+3x+2$
	4. $g\left(x\right)= 16$
2. Suppose that $f\left(x\right)= 4x-1$ and $g\left(x\right)= -2x+5$.
	1. Solve $f\left(x\right)=0$
	2. Solve $f\left(x\right)>0$
	3. Solve $f\left(x\right)=g(x)$
	4. Solve $f\left(x\right)\leq g(x)$
3. Suppose that the quantity supplied S and quantity demanded D of T-shirts at a concert are given by the following functions: S(p) = -2000 + 3000p and $D\left(p\right)= 1000-25p$ where p is the price of a t-shirt.
	1. Find the equilibrium price for t-shirts at this concert. What is the equilibrium quantity?
	2. Determine the prices for which quantity demanded is less than quantity supplied.
	3. What do you think will eventually happen to the price of hot dogs if quantity demanded is less than quantity supplied?