Linear Applications

In pretend-land Paul the Plumber charges $3 per house call and $6 per hour for his labor. 1) Give a t-table of several values illustrating Paul's income relative to the amount of time he has worked. 2) Write an equation that models the plumber's fees. 3) Give the equation in function form. 4) Graph the function. 5) What is the cost of a job that takes 4 hours? 6) What is f(8)? 7) If Paul came over, told you an electrician was needed, and then left, how much would you owe him?	In the real world Paul charges $40 for a house call and $75 per hour for his labor. 8) Give the equation that models the plumber's fees. 9) Give the equation in function form. 10) Graph the function. 11) What is the cost of a job that takes 2 hours? 12) What is f(5)? 13) If Paul dropped in, fixed the problem in 5 minutes and didn't charge you for his time, how much would you owe?
The "Luv to Talk" phone company charges you $20 per month to lease a phone and $.05 for each minute you talk. 14) Write an equation that models the cost of using a phone each month. 15) Write the equation in function form. 16) Graph the function. 17) What would your bill be if you talked for 300 minutes? 18) What is f(650)? 19) Say your mom confiscated your phone for the entire month because of your grades. What would you pay for the month? 20) Where is the monthly charge shown on the graph? 21) How is the charge per minute shown on the graph? 22) What would be different if the phone company charged $30 per month?	Stan makes $25/day in salary and $5 commission for every product he sells. 23) Give a t-table of several values illustrating Stan's income relative to the amount of time he has worked. 24) Write an equation that models the Stan's income. 25) Write the equation in function form. 26) Graph the function. 27) What would Stan make on a bad day where he didn't sell anything? 28) What is f(40)? 29) How much would Stan make if he sold 100 items? 30) Where do you find Stan's salary on the graph? 31) Where do you see Stan's commission in the equation for his income? 32) What would be different if Stan made $9 for each product he sells?

You are ordering black T-shirts for next year's Homecoming game. You learn that the base cost for a shirt is $4.00. Shipping costs $75. 33) Give a t-table of several values illustrating the cost of buying these t-shirts. 34) Write an equation that models the cost. 35) Write the equation in function form. 36) Graph the function. 37) What is the cost of 500 shirts? 38) Find f(350). Suppose you are going to sell the shirts for $7. 39) Write the equation that shows the income on those sales. 40) What would be the income for selling 500 shirts? Suppose you place an order of 300 shirts. 41) Give the equation that models your profits for this scenario. 42) What are your profits after your order has come in but before you have sold any shirts? 43) What are your profits after selling 50 shirts? 44) What is f(100)? 45) How many shirts would you have to sell to break even? 46) How much would you make if you sold your entire order?	If you buy the T-shirts with 3 extra print colors the company will waive the shipping fee. Your order the shirts with a design of three extra colors at $1.00/color. 47) Give a t-table of several values illustrating the cost of buying these t-shirts. 48) Write an equation that models the cost. 49) Write the equation in function form. 50) Graph the function. 51) What is the cost of 500 shirts? 52) Find f(350). Suppose you are going to sell the shirts for $10. 53) Write the equation that shows the income on those sales. 54) What would be the income for selling 400 shirts? Suppose you place an order of 250 shirts. 55) Give the equation that models your profits for this scenario. 56) What are your profits after your order has come in but before you have sold any shirts? 57) What are your profits after selling 100 shirts? 58) What is f(150)? 59) How many shirts would you have to sell to break even? 60) How much would you make if you sold your entire order?

There are 24 gallons of water in a bathtub. When the plug is pulled 3 gallons drain from the tub every minute. 61) Give a t-table of several values showing the amount of water in the tub relative to time. 62) Give the equation that models this scenario. 63) Graph this function. 64) Where is the original amount of water in the tub shown on the graph? 65) How is the amount of water going down the drain shown on the graph? 66) What is f(5)? What does f(5) mean? 67) What is the meaning of the point where the graph hits the y-axis? The x-axis? 68) What is the value of f(-2)? What does this value mean? What would it mean if the tub had already been draining for several minutes? 69) What is f(0)? What does it mean?	Bill spends $80 at the beginning of each month for lunch at the company cafeteria. He also allows himself $2/day for extras and snacks. 70) Make a t-table that shows some values for Bill's spending on food. 71) Give an equation that models Bill's spending. 72) Graph this function. 73) What is f(0)? What does it mean? 74) Where is the $80 cost shown on the graph? 75) Where is the y-intercept on the graph? What does it mean? 76) How is Bill's $2/day expenditure shown on the graph. 77) What is the meaning of the point where the graph hits the y-axis? The x-axis? 78) What is f(8)? What does it mean? 79) What is f(-5)? What does it mean?