**1.)** The national cost “*C”* in billions of dollars for dental services can be modeled by the linear equation:

*C =* 2.85n+ 30.52

where *n* is the number of years since 1990 (Health Care Financing Administration, www.hcfa.gov).

**a)** Find and interpret the *C*-intercept for the line.

**b)** Find and interpret the *n*-intercept for the line.

**c)** Graph the line for *n* ranging from 0 through 20.

**2.) *Demand equation.*** Helen’s Health Foods usually sells 400 cans of ProPac Muscle Punch per week when the price is $5 per can. After experimenting with prices for some time, Helen has determined that the weekly demand can be found by using the equation:

d=600-40p

where *d* is the number of cans and *p* is the price per can.

**a)** Will Helen sell more or less Muscle Punch if she raises

her price from $5?

**b)** What happens to her sales every time she raises her

price by $1?

**c)** Graph the equation.

**3.) *Marginal revenue.*** A defense attorney charges her client $4000 plus $120 per hour.

The formula R=120n+4000 gives her revenue in dollars for *n* hours of work.

**a)** What is her revenue for 100 hours of work?

**b)** What is her revenue for 101 hours of work?

**c)** By how much did the one extra hour of work increase the revenue? (The increase in revenue is called the *marginal revenue* for the 101st hour.)

**4.) *Gas laws.*** The volume of a gas is inversely proportional to the pressure on the gas. If the volume is 6 cubic centimeters when the pressure on the gas is 8 kilograms per square centimeter, then what is the volume when the pressure is 12 kilograms per square centimeter?

**5.) Graph the linear inequality:**

2x<3y+6

**6.) Solve each system by substitution. Determine whether the equations are independent, dependent or inconsistent.**

**a)** y=-3x+19

y=2x-1

**b)** y=-4x-7

y=3x

**7) Solve each system by Addition Method**

**a)** 3x+5y=-11

x-2y=11

**b)** 2x=2-4

3x+y=-1

**8) Solve each system by the Addition Method. Determine whether the equations are independent, dependent or inconsistent.**

**a)** x-y=3

-6x+6y=17

**9) Solve each system by Addition Method**

**a) **

**b)** 3x-2.5y=7.125

2.5x-3y=7.3125