Math 1311
Homework 6 (Section 3.3 - Section 3.5)

Record your answers to all the problems in the EMCF titled **" Homework 6"** .

1. Section 3.3 Exercise 2b

a) $y(t) = 0.6x + 6.2$
b) $y(t) = 3.6x + 6.2$
c) $y(t) = 2.6x + 6.2$
d) $y(t) = 4.2x + 3.6$

2. Section 3.3 Exercise 2c

a) The slope is 3.6, the amount that the total adjusted gross income per year in trillions increased as reported to the IRS.
b) The slope is 4.2, the amount that the total adjusted gross income per year in trillions increased as reported to the IRS.
c) The slope is 0.6, the amount that the total adjusted gross income per year in trillions increased as reported to the IRS.
d) increased as reported to the IRS.

3. Section 3.3 Exercise 4a

a) $y = 1545x + 25540$
b) $y = 1765x + 32240$
c) $y = 1445x + 52540$
d) $y = 1325x + 15540$

4. Section 3.3 Exercise 4c

a) $15,582
b) $39,445
c) $29,270
d) $50,885

5. Section 3.3 Exercise 14b

a) -0.03
b) -0.09
c) -0.12
d) -0.25

6.

   Section 3.3 Exercise 14c
   a) $f(x) = -0.03x + 191.52$
   b) $f(x) = -0.09x + 181.48$
   c) $f(x) = -0.12x + 191.52$
   d) $f(x) = -0.25x + 181.48$

7. Section 3.3 Exercise 14d
   a) $f(1994) = 2.63$
   b) $f(1994) = 2.02$
   c) $f(1994) = 3.65$
   d) $f(1994) = 3.02$

8. Find a linear model for the following data.

x	3	6	9	12
y	9	15	21	27

  a) $y = -2x - 15$
  b) $y = 2x + 3$
  c) $y = 2x - 3$
  d) $y = -2x + 15$

9. The following table shows the average yearly tuition and required fees, in dollars, charged by a certain private university in the school year beginning in the given year.

Date	Average tuition
1994	$13,424
1995	$14,281
1996	$15,138
1997	$15,995
1998	$16,852

What prediction does the formula modeling this data give for average yearly tuition and required fees for the university for the academic year beginning in 2004?

  a) $21,994
  b) $20,280
  c) $24,565
  d) $25,422

10. The following table gives the total cost C, in dollars, for a widget manufacturer as a function of the number N of widgets produced during a month.

Number N	Total cost C
150	5250
200	6750
250	8250
300	9750

The manufacturer wants to reduce the variable cost so that the total cost at a monthly production level of 550 will be $9000. What will the new variable cost be?

a) $5
b) $35
c) $20
d) $15

11. In general, the highest price p per unit of an item at which a manufacturer can sell N items is not constant but is, rather, a function of N. Suppose the manufacturer of widgets has developed the following table showing the highest price p, in dollars, of a widget at which N widgets can be sold.

Number N	Price p
250	41.50
300	40.80
350	40.10
400	39.40

Find a formula for p in terms of N modeling the data in the table.

a) $p = -45N - 0.014$
b) $p = 45N - 0.014$
c) $p = -45N + 0.014$
d) $p = -0.014N + 45$

12. Section 3.4 Exercise 8b

a) $C(x) = 11.72x - 23384.68$

b) $C(x) = 22.72x - 23384.68$

c) $C(x) = 11.72x - 32369.68$

d) $C(x) = 22.72x - 32369.68$

13. Section 3.4 Exercise 8c

   a) 170.8 billions

   b) 160.8 billions

   c) 150.8 billions

   d) 140.8 billions

14. Section 3.4 Exercise 10a

   a) $S(t) = .23t + 55$

   b) $S(t) = .33t + 55$

   c) $S(t) = .23t + 75$

   d) $S(t) = .33t + 75$

15. You have $216.00 to spend on drinks. Fruit drinks cost $2.00 and soft drinks cost $1.00. You need to buy 4 times as many soft drinks as fruit drinks. How many soft drinks should you buy?
   a)   152
   b)   120
   c)   140
   d)   144

16. A company wants to mix peanuts, which contain 25% protein, and cashews, which contain 10% protein, to make a trail mix. If you make a mixture of 10 pounds of peanuts and 60 pounds of cashews, how many pounds of protein are in the mixture?

a) 17.5 pounds

b) 16 pounds

c) 15 pounds

d) 8.5 pounds

17. A bag contains 72 coins, some dimes and some quarters. The total amount of money in the
    bag is $12.00 Find how many dimes are in the bag.
    a) 40
    b) 32
    c) 8
    d) 48

18. Section 3.5 Skill Building Exercise S – 2

   a) The two lines never intersect and there is no solution.

   b) There are infinitely many solutions.

   c) There is only one solution.

   d) No Solution

19. Solve using crossing graphs.

$$4x - 2y = 9$$
$$x + y = 0$$

a) $x = 3.5 \, ; y = -3.5$

b) $x = 1.5 \, ; y = -1.5$

c) $x = 2.5 \, ; y = -2.5$

d) $x = 4.5 \, ; y = -4.5$

20. Section 3.5 Exercise 12

a) 25 quarters and 5 dimes

b) 15 quarters and 15 dimes

c) 3 quarters and 27 dimes

d) 5 quarters and 25 dimes