

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

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

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, decrease in the number of students graduating per year since 1985.
- b) -0.09, decrease in the number of students graduating per year since 1985.
- c) -0.12, decrease in the number of students graduating per year since 1985.
- d) -0.25, decrease in the number of students graduating per year since 1985.

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.

$$\begin{aligned}4x - 2y &= 9 \\x + y &= 0\end{aligned}$$

- 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

