MAT 113 Final Review Answers
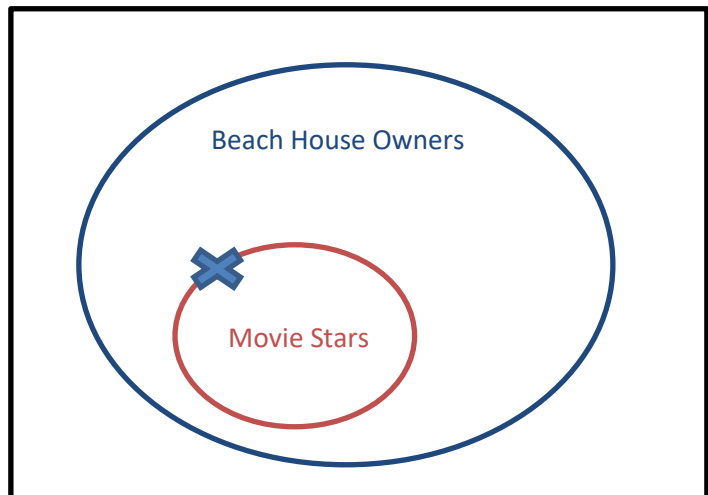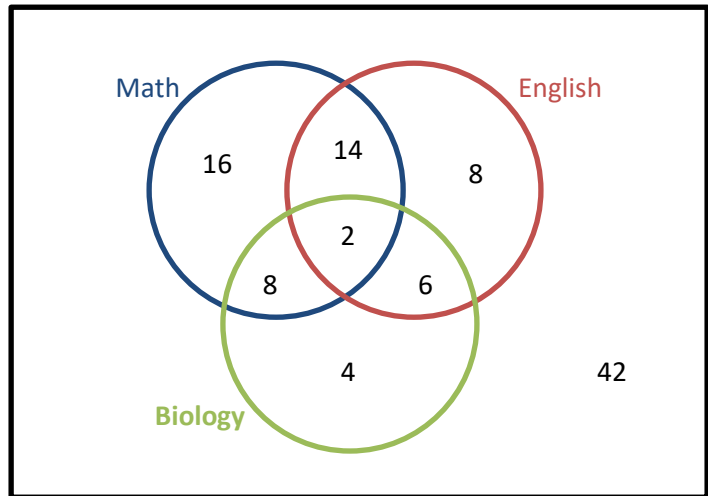
Chapter 1, Section 9.1, Appendices, & Metric System

1. (see table below)

p	q	NOT p	NOT q	p AND q	p OR q	If p, then q.	(NOT p) AND q	p OR (NOT q)	If (NOT p), then q.
T	T	F	F	T	T	T	F	T	T
T	F	F	T	F	T	F	F	T	T
F	T	T	F	F	T	T	T	F	T
F	F	T	T	F	F	T	F	T	F

2. a. 70
   b. 16
   c. 54
   d. 28
   e. 42
   f. 28
   g. 6
   h. 50

3. a. 475,200 sec
   b. 8.87 km
   c. 117.3 ft/sec

4. a. 120 ft^2
   b. $348

5. $243.20

6. a. 0.87 ft
   b. 1.145 ft^2

7. 2.575 L

8. a. 17.71 ft
   b. 18.53 ft^2
   c. 5.831 ft

9. a. If you are a movie star, then you own a beach house.
   b. If you own a beach house, then you are a movie star.
   c. If you are not a movie star, then you do not own a beach house.
   d. If you do not own a beach house, then you are not a movie star.
   e. Invalid Conclusion

10. 177 years

11. a. 4,290 in^2
    b. 390 in

12. 2.9 in^2

13. a. 452.39 ft^2
    b. 75.40 ft

14. a. Straw Man
    b. Appeal to Common Practice
    c. Circular Reasoning
    d. False Cause
    e. False Authority
    f. Appeal to Ignorance

100 students

Chapter 2

1. a. 0.48 billion people
   b. 0.76 billion people
   c. 4.29 billion people
2. a. 18.8%
   b. 12.5%
   c. 167.6%
3. a. 0.048 billion people per year
   b. 0.076 billion people per year
4. a. 2.70 billion people
   b. 7.46 billion people
5. 2002–2004: b   2004–2006: c
   2006–2009: e   2009–2011: a
6. Mortgages/Taxes: 40%
   Insurance: 15%
   Utilities: 15%
   Food: 7.5%
   Entertainment/Misc.: 7.5%
   Savings/Giving: 15%
7. 1970: $121,771
   1980: $108,712
   1990: $107,748
   2000: $91,350
   2010: $92,200
   Ben's father made the most money in 1970.
8. b;   a;   e

Chapter 3

1. a. Exponential
   b. Linear
2. $C = 30 + 12n$
3. a. $q = -10p + 70$
   b. 5 pineapples
   c. $1.50
   d. For each increase of $1 in the price, 10 fewer pineapples will be sold.
4. a. $m = -2500$
      This means the value of the vehicle decreases $2,500 each year.
   b. $y = -2500x + 35000$
   c. $17,500
5. a. $P = 1200(1.08)^t$
   b. 2,591 people
   c. 6.9 years
   d. 9 years
6. a. $Q(t) = 90(0.72)^t$
   b. 24.2 mg
   c. 6.7 hr
   d. 2.11 hr
   e. 0.03 mg
7. 31.5 lb
8. a. 512 cells
   b. 5.498×10^{11} cells
9. 14.1 months
10. 3.486 hr
11. a. $y = 800 + 0.06x$
    b. $965
    c. $3,333.33
12. 199,526
13. 1,000 times

Chapter 4

1. $1,900
2. a. $734.03
   b. 152 monthly payments or 12.6 years
3. a. $2,088.17
   b. $353,741.20
   c. (see table below)

Payment Number	Payment	Applied to Interest	Applied to Principal	Balance
—	—	—	—	$398,000.00
1	$2,088.17	$1,592.00	$496.17	$397,503.83
2	$2,088.17	$1,590.02	$498.15	$397,005.68
3	$2,088.17	$1,588.02	$500.15	$396,505.53
4	$2,088.17	$1,586.02	$502.15	$396,003.38

4. a. $542.68
   b. $52,317.50
5. $1,200
6. $14,583.33
7. $19,382.47
8. $27,022
9. a. 10.38%
   b. 10.47%
10. a. $3,099
    b. $1,901
11. 37.7%

12. 4.3%
13. $86,304
14. a. $529,396.63
    b. $445,396.63
15. a. $777,387.14
    b. $286.18
    c. $1,800,000
16. $493.49
17. Approximately 14.4 years;
    Exactly 13.9 years
18. 4.06%

19. 0% APR monthly
    payment: $479.17
    Rebate option monthly
    payment: $451.35
    The rebate option is
    cheaper.
20. $79,000
21. $27,158.89
22. $558.75
23. 1.48%

Chapter 5

1. a. 3/13
   b. 7/13
   c. 1/221
   d. 1/17
   e. 2/17
   f. 1/33,150

2. a. 4,845
   b. 116,280
   c. 33/323
   d. 14/969
   e. 955/969
   f. 352/969

3. a. 19/50
   b. 9/25
   c. 4/5
   d. 37/50
   e. 27/50
4. 5/12
5. ¼
6. 2/3

7. −$2.78
8. $259.87
9. $3
10. 0.245
11. a. 0.0004
    b. 0.9604
    c. 0.0396
12. 0.8385

Chapter 6

1. Only "e" is not true.
2. a. 0.82%
   b. 11.51%
   c. 49.18%
3. Mean: 5107
   Median: 5051
   Mode: (none)
   Range: 844
   5-Number Summary:
       Minimum = 4614
       Q1   = 4957
       Median = 5051
       Q3   = 5386
       Maximum = 5458
4. a. between 396 and 618
   b. between 285 and 729
   c. between 174 and 840

5. a. 16%
   b. 84%
   c. 13.5%
   d. 0.15%
   e. 13.5%
   f. 270 students
6. a. 69.15%
   b. 8.08%
   c. 24.78%
   d. 496 students
7. a. 1.1%
   b. 3.5%
8. a. 494
   b. 4444
9. 73.1% to 78.9%
10. 86.5% to 89.5%

11. a. P   f. N
    b. N   g. N
    c. P   h. P
    d. U   i. U
    e. P
12. a; c; d; e
13. Least: −1
    Greatest: 1
14. 87
15. 35.8 years
16. 55.9 years
17. a. $5.82
    b. $5.86
    c. $5.86