REVIEW TEST 2 – Section 3.6, Chapters 5, 6, 7 (7.1 – 7.5)

To prepare for the test, study the following :

Section 3.6 – Introduction to Functions

- **Homework** – Section 3.6 - All homework problems
- **All examples done in class.**
- **More practice:**

1) Which of the following tables define the second variable as a function of the first variable? Explain why or why not.

x	*t*
-1	2
0	9
1	-2
0	-3
-1	5

Adjusted gross income (*I*)	Tax bracket (*T*)
0 – 2479	0%
2480 – 3669	11%
3670 – 4749	12%
4750 – 7009	14%
7010 – 9169	15%
9170 – 11,649	16%
11,650 – 13,919	18%

Temperature (T)	Humidity (*h*)
Jan.1 $34^o\,F$	42%
Jan.2 $36^o\,F$	44%
Jan 3 $35^o\,F$	47%
Jan 4 $29^o\,F$	50%
Jan5 $31^o\,F$	52%
Jan.6 $35^o\,F$	51%
Jan.7 $34^o\,F$	49%

2) Which of the following tables and diagrams define the second variable as a function of the first variable? Explain why or why not.
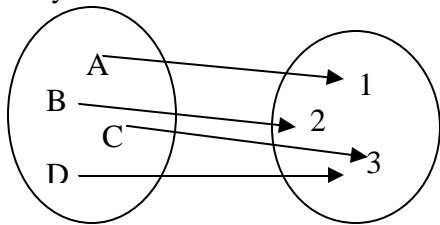
i) If the relation is a function, give the domain and the range.
ii) Find f(B).
iii) Solve f(x)=1

| *x*	*y*
-23	12
-12	120
120	1
0	0

i)   If y is a function of x, give the domain and the range.
ii)   Find f(0) and f(120).
iii)   Solve f(x)=12
iv)

3) Which of the following equations define *y* as a function of *x*. Explain why or why not using the definition of function:

a) $y = 5x + 2$ b) $y = x^2$ c) $x = y^2$

4) a) What is the definition of a function?   b) Give an example of a function , using a table, a diagram, or an equation.   c) What is the domain of a function (the definition) ? In particular, what is the domain of your function?

5) Which of the graphs represent *y* as a function of *x*? Explain why or why not. Give domain and range for all graphs.
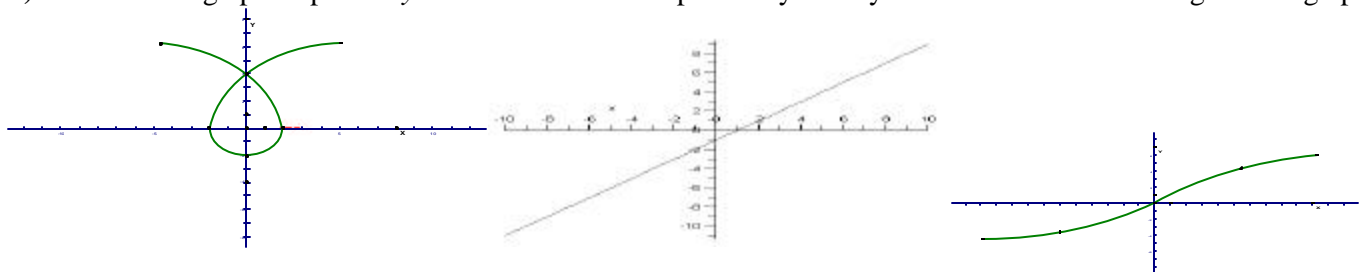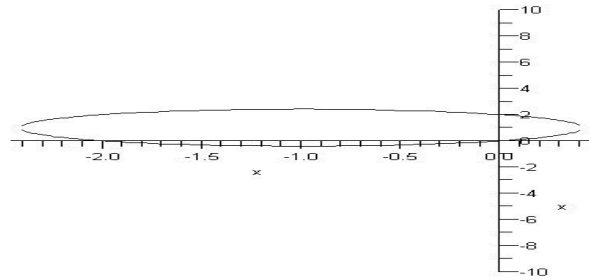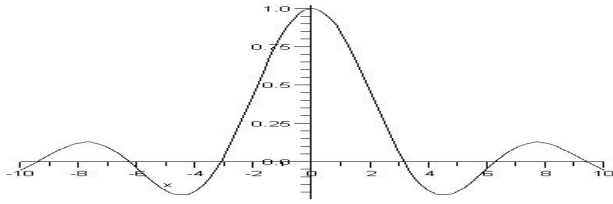
Chapter 5 – Exponents and Polynomials
- **Homework** – Chapter 5 - All homework problems.
- **All examples done in class**
- **Quiz #2**
- **More practice:**

1) Simplify each expression. Write the final answer using only positive exponents.

a) $\left(\dfrac{2a^{-2}b}{3ab^{-3}}\right)^3$ b) $\dfrac{a^0+b^0}{2(a+b)^0}$ c) $\dfrac{\left(-3p^4q^{-5}\right)^{-3}\left(2p^{-4}q^3\right)^{-2}}{4p^5q^{-2}}$ d) $\left(\dfrac{2x^{-4}y}{x^5y^5}\right)^{-3}\left(\dfrac{4x^{-2}y^0}{x^7y^2}\right)^2$ e) $\dfrac{\left(-2x^2y^3\right)^2\left(3x^4y^5\right)^3}{\left(2x^2\right)^6\left(3y^8\right)}$

2) Simplify – use special products whenever appropriate:

a) $(x+1)^3$ b) $(2a-1)^3$ c) $(x+2)^4$ d) $\left(\dfrac{1}{2}x^2+\dfrac{2}{5}x-1\right)\left(4x^3-\dfrac{5}{3}x^2-x+\dfrac{1}{2}\right)$ e) $\left(\dfrac{2}{3}x+\dfrac{5}{6}y\right)^2$

f) $\left(a^2b-ab^2\right)^2$ g) $\left(\dfrac{3}{2}a-\dfrac{8}{9}b^2\right)^2$ h) $\left(\dfrac{10}{11}x-1\right)\left(\dfrac{10}{11}x+1\right)$ i) $\left(3p+\dfrac{5}{4}q\right)\left(2p-\dfrac{5}{3}q\right)$

3) Let $P(x)=-x^5+3\,x^4-\dfrac{1}{2}x^2-10$, $Q(x)=\left(x^4-3x-1\right)\left(-x^2-5\right)$ two polynomials.

a) How many terms does each polynomial have? ;   b) What is the degree of each polynomial?;
c) What is the constant term of each? ;   d) Find P(0) and Q(-1);   e) Find their sum and product;
f) Find P(x)-Q(x);   g) Divide Q by P;   h) Find P(2x).

Chapter 6 – Factoring and Applications

- **Homework** – Chapter 6 – All homework problems
- **Handout Chapter 6** – All exercises
- **All examples done in class**.
- **Quiz #2**
- **More practice**:

1) Solve each equation by factoring:

a) $x^2-9=0$ **b)** $x^2-6x-7=0$ c) $y^2+2y=0$

d) $-20x^2+6=-7x$ e) $x^3+4x^2+3x=0$ f) $3x^2-21x=-30$

g) $10x^2+43x=9$ h) $(2x+3)(3x-5)=-10$

j) $(3x-5)(4x+1)=24$ l) $(3x+1)^2-9x^2=31$

Chapter 7 – Rational expressions
- **Homework** – Chapter 7 – 7.1 – 7.5 All homework problems.
- **All examples done in class.**
- **More practice: odd exercises from the textbook**