**PRECALCULUS MATH 11 – REVIEW MIDTERM (CH1-4) NOTES OUTLINE**

**CHAPTER 1 – SEQUENCES AND SERIES (formula sheet!)**

1.Arithmetic sequence

2.Arithmetic series

3.Geometric sequence

4.Geometric series

5.Infinite geometric series

**CHAPTER 2 – ABSOLUTE VALUES AND RADICALS**

1.absolute value

a. $\left|5(4) -3\right|$ b. $\frac{\left|2-(-8)\right|}{\left|3\right|-\left|-2\right|}$

2.simplify radical expressions

a.$\sqrt{54}$ b. $\sqrt[3]{96}$ c. $\sqrt{48b^{4}}$

3.add/subtract radicals

Like radicals-

1. $3\sqrt{2}+2\sqrt{2}-7\sqrt{2}$ b. $\sqrt{108}-2\sqrt{3}-\sqrt{75}$

4.multiply/divide radicals

a. $(2\sqrt{3}+3\sqrt{2})(\sqrt{3}-\sqrt{2})$ b. $\frac{4\sqrt{5}-2}{\sqrt{5}}$ c. $\frac{4+2\sqrt{6}}{3\sqrt{2}-4}$

5.solve radical equations(ALWAYS check)

a. $3\sqrt{x}=5$ b. $\sqrt{x-1}=\sqrt{2x+3}$

**CHAPTER 3 – SOLVE QUADRATIC EQUATIONS**

1.factor

a. $x^{2}-6x-16$ b. $2x^{2}+x-15$ c. $4x^{2}-81y^{2}$

2.solve by factoring

a. $x^{2}-2x-8$ b. $5x^{2}=-20x$

3.solve by square root

a.$ 2x^{2}=6$ b. $(x+3)^{2}=20$

4.quadratic formula (formula sheet)

5.Discriminant

**CHAPTER 4 – QUADRATIC FUNCTIONS**

1.vocabulary – y = a(x-p)2 +q $y=-\frac{1}{2}\left(x+2\right)^{2}-3$

vertex

direction of opening

axis of symmetry

max/min

x intercepts

y intercept

domain

range

2.writing equations

a. axis of sym x=3, max is 2, thru point (-1,-6)

3. changing format (analyzing) – complete the square(ch3)

a. $y=x^{2}-10x+3$ b. $ y=3x^{2}-12x+7$

4. Modelling - problem solving quadratics

a. A rectangular lot is bordered on one side by a building and the other 3 sides by 800m of fencing. Determine the area of the largest possible lot.