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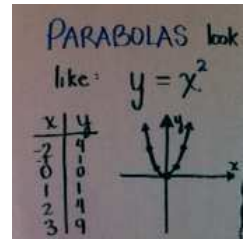
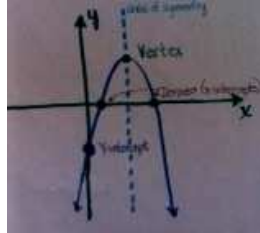
MCF 3M Final Exam Textbook Review

Unit 1 – Functions

Read: p. 66 Function and Transformations Study Guide
 NOTE: Know the following

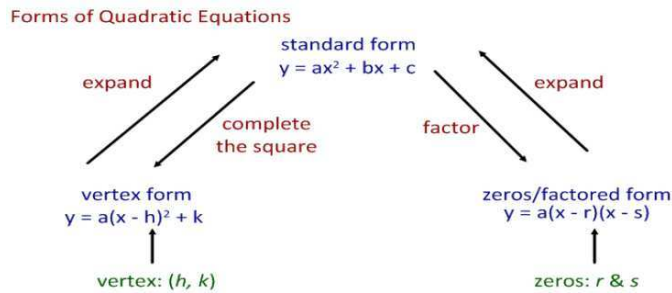
General pattern	1,1
	2,4
	3,9

- A relations is a function if there is only 1 y value for every x
- How to translate quadratic functions



Unit 2 – Quadratics 1

Read: p. 118 Quadratics Study Guide
 NOTE: know how to move between the 3 forms of the equations



Unit 3 – Quadratics 2

Read: p. 181 and p. 253 Working with Quadratics Guide
 NOTE: Know what to do with word problems, what to do with Max and Min, Roots...

- Given problems or data: model the data with an equations solve problems related to that equations

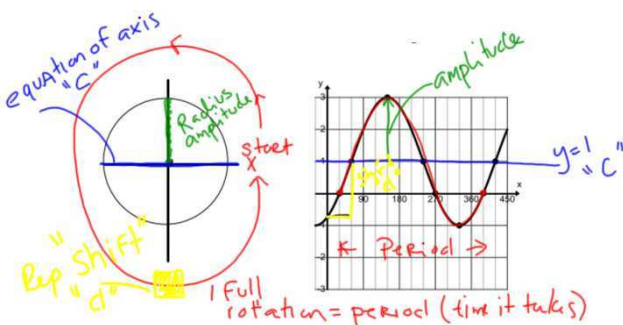
Unit 4 – Trigonometry

Read: p. 313 Trigonometry Study Guide
 NOTE: Alternate versions of Sine Law, Cosine Law given

- Use Sum of Angles, Pythagorean Theorem, SOHCAHTOA, Sine Law, Cosine Law to solve problems
- Right triangles: Pythagorean Theorem, SOHCAHTOA
- Non-Right triangles: Sine Law (side-angle pair), Cosine Law (SSS and SAS), Sum of Angles is 180°

Unit 5 – Sinusoidal Functions

Read: p. 377 Sinusoidal Models Study Guide



$y = a \sin b(x - d) + c$

a = stretch / squish / amplitude
 b = period (e.g. $b = 360$ for 2π)
 d = shift
 c = eqn of axis

Full cycle: $D = \{x \in \mathbb{R} // 1 \text{ cycle}\}$
 Not full cycle: $D = x \in \mathbb{R}$
 $R = \{y \in \mathbb{R} // \text{between max + min}\}$

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Unit 6 – Exponential Functions

Read: p. 442 Exponential Models Study Guide

- Simplify using exponent rules

Multiplying Powers $a^m \times a^n = a^{m+n}$

Dividing Powers $a^m \div a^n = a^{m-n}$

Power of a Power $(a^m)^n = a^{mn}$

Zero Exponent $a^0 = 1$

Negative Exponent $a^{-m} =$

Power of a Product $(ab)^m = a^m b^m$

Power of a Quotient $\left(\frac{a}{b}\right)^m = \frac{a^m}{b^m}$

$$a^{\frac{1}{n}} \equiv \sqrt[n]{a}$$

index: indicates what root you want

numerator is the exponent

$$a^{\frac{m}{n}} = \left(\sqrt[n]{a}\right)^m$$

OR

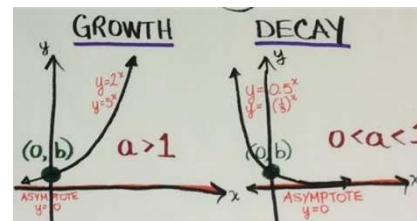
$$a^{\frac{m}{n}} = \sqrt[n]{a^m}$$

denominator is the index

$$\frac{a^{\frac{1}{2}}}{b^{\frac{1}{2}}} = \left(\frac{a}{b}\right)^{\frac{1}{2}} = \sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$a^{\frac{1}{n}} \times b^{\frac{1}{n}} \times c^{\frac{1}{n}} = \sqrt[n]{a} \times \sqrt[n]{b} \times \sqrt[n]{c} = \sqrt[n]{a \times b \times c}$$

- Convert between radical and exponential forms
- Solve exponential equations
 - Write both sides with the same base
 - Set exponents equal and solve for x



Unit 7 – Personal Finance, Annuities and Mortgages

Read: p. 521 Personal Finance and Annuities Study Guide (Only Ordinary Simple Annuities)

NOTE: Formulas for A, PV, R will be given. Know how to use the TVM solver!!!

- $I = Prt$ $A = P + I$ $A = P[1 + rt]$ $A = P(1 + i)^n$
- $P = \frac{A}{(1 + i)^n}$ $PV = A(1 + i)^{-n}$
- Given the formulas $A = \frac{R[(1+i)^n - 1]}{i}$ and $R = \frac{FV \times i}{[(1+i)^n - 1]}$, solve problems for A and R
- Given the formulas $PV = \frac{R[1 - (1+i)^{-n}]}{i}$ and $R = \frac{PV \times i}{[1 - (1+i)^{-n}]}$, solve problems for PV and R

Textbooks Review Questions

Functions and Quadratics p. 186 #1-9, 12, 15,17,18

Quadratics, Trigonometry
and Sinusoidal functions p. p382# 1-6, 8-20,23-25,29

Exponential and Finance p526- # 1, 4, 6, 7, 9, 11