HB5 Mathematics

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MATH.

The only place where people can buy 64 Watermelons and no one wonders why...

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HB5 Math College Prep Course

Two options:

- Free – Learning Outcomes/Links with CTC provided Final Exam
- Low Cost – MyMathTest with Diagnostic Tests, Study Plans, Final Exams

Math Express HB5 Webpage

https://www.ctcd.edu/academics/instructional-departments/mathematics/math-express/HB5-College-Prep/

HB5 College Prep

- Instructions for Learning Outcomes Links Spreadsheet
- TSI Assessment MATH Measurements (2018)
- Texas Higher Education Coordinating Board ACGM Learning Outcomes
- Learning Outcomes Links Spreadsheet
- Low Cost Option - MyMathTest

Questions? Email Mark Pollett, Associate Dean Service Area Campus at mark.pollett@ctcd.edu for more information about HB5 and HB5 Memorandum of Understanding or math.express@ctcd.edu for specific questions about the shared PDF files.

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TSIA Mathematics Measurements

TSIA Four Content Areas:

1) Elementary Algebra and Functions – measures students' knowledge in linear equations, inequalities, and systems; algebraic expressions and equations; word problems and applications.

2) Intermediate Algebra and Functions – measures students' knowledge in quadratic and other polynomial expressions, equations, and functions; expressions, equations, and functions involving powers, roots, and radicals; rational and exponential expressions, equations, and functions.

3) Geometry and Measurement – measures students' knowledge in plane geometry; transformations and symmetry; linear, area and three-dimensional measurements.

4) Data Analysis, Statistics, and Probability – measures students' knowledge in interpreting categorical and quantitative data, statistical measures, probabilistic reasoning.

The new TSIA2 test will begin in Fall 2020. The Four Content Areas remain the same; however, the number of problems per area will change. There will only be an ABE score 1-6 (not a diagnostic score) if the student does not pass the test (numbering will change).

HB5_TSIA_MATH_2018_Measurements pdf file

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Sample TSIA DE Mathematics Diagnostic Score Report:

Domain	Needs Improvement	Limited Proficiency	Proficient	Score
Elementary Algebra				15

The results suggest that you have the ability to perform operations with real numbers and algebraic expressions using correct order of operations; solve linear equations, inequalities, systems, and variation problems; graph linear functions; solve word problems.

Domain	Needs Improvement	Limited Proficiency	Proficient	Score
Intermediate Algebra				12

The results suggest that you have the ability to factor polynomial expressions by GCF, grouping, difference of squares, trinomials; solve quadratic equations by factoring and using quadratic formula; simplify square roots with numerical values; solve simple equations with radicals and fractions; apply unit conversion in word problems; formulate algebraic expressions and equations to solve word problems; apply rules of exponents.

Texas Success Initiative Assessment – Understanding Your Mathematics Score
(from The College Board 2018 pdf file: tsai-interpreting-your-score-brochure)

HB5_TSIA_MATH_2018_Measurements pdf file

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Sample TSIA DE Mathematics Diagnostic Score Report:

Domain	Needs Improvement	Limited Proficiency	Proficient	Score
Measurement and Geometry				11

The results suggest that you have the ability to identify and analyze geometric shapes to calculate perimeter, area, and volume; analyze multistep geometric problems using factoring quadratics, use properties of transformations to solve problems, and apply the Pythagorean theorem; analyze and apply ratios and proportions to solve geometric problems such as similar figures; recognize and apply concepts of measurement conversions.

Domain	Needs Improvement	Limited Proficiency	Proficient	Score
Data Analysis, Statistics, and Probability				13

The results suggest that you have the ability to calculate and interpret the mean, median, mode, and range for a set of real number values; calculate the probability of events; make predictions using probabilities and statistics; analyze charts and graphs; apply counting principles; calculate percentages.

Texas Success Initiative Assessment – Understanding Your Mathematics Score
(from The College Board 2018 pdf file: tsai-interpreting-your-score-brochure)

HB5_TSIA_MATH_2018_Measurements pdf file

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Learning Outcomes for Developmental Mathematics/Intermediate Algebra
Spring 2019 Academic Course Guide Manual (ACGM)
Texas Higher Education Coordinating Board (THECB)

A. Use appropriate symbolic notation and vocabulary to communicate, interpret, and explain mathematical concepts.
B. Define, represent, and perform operations on real numbers, applying numeric reasoning to investigate and describe quantitative relationships and solve real world problems in a variety of contexts.
C. Use algebraic reasoning to solve problems that require ratios, rates, percentages, and proportions in a variety of contexts using multiple representations.
D. Apply algebraic reasoning to manipulate expressions and equations to solve real world problems.
E. Use graphs, tables, and technology to analyze, interpret, and compare data sets.
F. Construct and use mathematical models in verbal, algebraic, graphical, and tabular form to solve problems from a variety of contexts and to make predictions and decisions.
G. Define, represent, and perform operations on real and complex numbers.

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HB5_THECB_ACGM_SPR19_Learning_Outcomes pdf file

H. Recognize, understand, and analyze features of a function.

I. Recognize and use algebraic (field) properties, concepts, procedures (including factoring), and algorithms to combine, transform, and evaluate absolute value, polynomial, radical, and rational expressions.

J. Identify, graph and solve absolute value, polynomial, radical, and rational equations.

K. Identify, graph and solve absolute value and linear inequalities.

L. Model, interpret and justify mathematical ideas and concepts using multiple representations.

M. Connect and use multiple strands of mathematics in situations and problems, as well as in the study of other disciplines.

A thru F are contained in the lower level Developmental Mathematics ACGM Learning Outcomes. G thru M are contained in the Intermediate Algebra ACGM Learning Outcomes.

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HB5_THECB_ACGM_SPR19_Learning_Outcomes pdf file

You Just Realized…

Think of a number. Double it. Add six. Half it. Take away the number you started with. Your answer is three.

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TSIA Content Area	ACGM Learning Outcomes		Beginning/Intermediate Algebra Concept	Khan Academy Search for Videos	Khan Academy Search for Practice	Purple Math Search
			Enter concept into search bar of link	www.khanacademy.org		www.purplemath.com
1	A B C	1	Converting Decimals to Fractions			
4	A B C	2	Converting Decimals to Percents			
4	A B C	3	Converting Percents to Decimals			
1, 3	A B C	4	Solve Problems using Ratios			
1	A B C	5	Solve Problems using Rates			
4	A B C	6	Solve Problems using Percentages			
1, 3	A B C	7	Solve Problems using Proportions			
4	B F M	8	Mean, Median, Mode			
4	B F M	9	Simple Probability			Not Available
3	A	10	Classify Angles (acute, right, obtuse, straight)			Not Available
3	A B C	11	Complementary Angles			Not Available

4 pages of concepts
Use as a check-off list.

TSIA Content Area	ACGM Learning Outcomes		Beginning/Intermediate Algebra Concept	Khan Academy Search for Videos	Khan Academy Search for Practice	Purple Math Search
1	F	27	Solve Linear Equations with Fractions			
1	A F	28	Solve Equations with No Solution			
1	A F	29	Solve Equations with Infinite Solutions			
1	F	30	Solve a Formula for One Variable			
1	L	31	Solve Linear Inequalities			
1	B D F	32	Problem Solving with Inequalities			
4	A E	33	Interpret Bar Graphs			Not Available
4	A E	34	Interpret Line Graphs			Not Available
4	E	35	Plot Ordered Pairs (plot points)			
4	A E	36	Scatter Diagrams (scatter plots)			
1	E	37	Calculate Missing Coordinate of Ordered Pair			
1	E	38	Graph Using Ordered Pairs			
1	E	39	Find Intercepts of Graph			
1	E	40	Graph Vertical Lines			
1	E	41	Graph Horizontal Lines			
1	E	42	Calculate the Slope Given Two Points			
1	E	43	Calculate the Slope Given the Equations			
1	A F	44	Interpret Slope as Rate of Change			
1	E	45	Write Equation Using Slope-Intercept Form			
1	E	46	Graph Using Slope-Intercept Form			
1	E	47	Write Equations Using Point-Slope Form			
1	A H	48	Identify Domain			
1	A H	49	Identify Range			
1	H	50	Identify Functions			
1	E J	51	Solve a System of Linear Equations by Graphing			
1	D I	52	Solve a System of Linear Equations by Substitution			
1	D I	53	Solve a System of Linear Equations by Addition Method			
1	D L M	54	Solve System of Linear Equations Word Problems			
2	I	55	Evaluate Exponential Expressions			
2	I	56	Use Product Rule for Exponents			

TSIA Content Area	ACGM Learning Outcomes		Beginning/Intermediate Algebra Concept	Khan Academy Search for Videos	Khan Academy Search for Practice	Purple Math Search
2	I	57	Use Power Rule for Exponents			
2	I	58	Use Quotient Rule for Exponents			
2	I	59	Use Power of a Product Rule for Exponents			
2	I	60	Simplify Expressions with Negative Exponents			
2	I	61	Simplify Expressions with Exponents			
2	H	62	Define a Polynomial Function			
2	I	63	Simplify a Polynomial			
2	I	64	Add Polynomials			
2	I	65	Subtract Polynomials			
2	I	66	Multiply monomial by polynomial (Distributive Property)			
2	I	67	Multiply Polynomials (multiply binomials by polynomials)			
2	I	68	Multiply Two Binomials			
2	I	69	Square a Binomial			
2	I	70	Write Numbers in Scientific Notation			
2	I	71	Convert Numbers from Scientific Notation to Standard Form			
2	I	72	Divide a Polynomial by a Monomial			
2	I	73	Divide Polynomials Using Long Division			
2	I	74	Divide Polynomials Using Synthetic Division		Not Available	
2, 3	I	75	Factor out the GCF from a Polynomial			
2, 3	I	76	Factor a Polynomial by Grouping		Not Available	
2, 3	I	77	Factor Trinomials (factor quadratics)			
2, 3	I	78	Factor a Perfect Square Trinomial			
2, 3	I	79	Factor a Difference of Squares			
2, 3	J	80	Solve Quadratic Equations by Factoring			
2, 3	J	81	Identify x-intercepts of Quadratic Functions			
2, 3	J L M	82	Solve Problems Modeled by Quadratic Equations			
2	H	83	Find Domain of Rational Function			
2	I	84	Simplify Rational Expressions			
2	I	85	Multiply Rational Expressions			
2	I	86	Divide Rational Expressions			

TSIA Content Area	ACGM Learning Outcomes		Beginning/Intermediate Algebra Concept	Khan Academy Search for Videos	Khan Academy Search for Practice	Purple Math Search
2	I	87	Add Rational Expressions			
2	I	88	Subtract Rational Expressions			
2	J	89	Solve Rational Equations			
2	J L M	90	Solve Problems Modeled by Rational Functions			
2	L	91	Find the Intersection of Two Sets			
2	L	92	Find the Union of Two Sets			
2	J	93	Solve Compound Inequalities			Not Available
2	J	94	Solve Absolute Value Equations			
2	K	95	Solve Absolute Value Inequalities			
2	K	96	Graph a System of Linear Inequalities			
2	I	97	Calculate Square Roots			
2	I	98	Calculate Cube Roots			
2	I	99	Calculate nth Roots			
2	J	100	Graph Square Roots			
2	J	101	Graph Cube Roots			
2	I	102	Simplify Expressions with Rational Exponents			
2	I	103	Simplify Radicals			
2	I	104	Use Product Rule for Radicals	Not Available	Not Available	
2	I	105	Use Quotient Rule for Radicals	Not Available	Not Available	
2	I	106	Rationalize Denominators			
2	J	107	Solve Radical Equations			
2	J L M	108	Pythagorean Theorem			Not Available
2	G	109	Add Complex Numbers			
2	G	110	Subtract Complex Numbers			
2	G	111	Multiply Complex Numbers			
2	G	112	Divide Complex Numbers			
2, 3	J	113	Use Quadratic Formula to Solve Quadratic Equations			
2, 3	J L M	114	Solve Problems Using Quadratic Equations			
2, 3	J	115	Find the Vertex of a Quadratic Function			
2	J M	116	Graph Quadratic Functions			

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1, 3	A B C	7	Solve Problems using Proportions			
4	B F M	8	Mean, Median, Mode			
4	B F M	9	Simple Probability			Not Available
3	A	10	Classify Angles (acute, right, obtuse, straight)			Not Available
3	A B C	11	Complementary Angles			Not Available
3	A B C	12	Supplementary Angles			Not Available
3	A B C	13	Measures of Angles (parellel lines cut by transversal)			Not Available
3	A B D	14	Perimeter		Not Available	
3	A B D	15	Circumference			
3	A B D	16	Area (triangles, rectangles, squares, circles)			
3	A B D	17	Volume (cylinders, cones, spheres, boxes, cubes)			
3	A B D	18	Surface Area (cylinders, boxes, cubes)			
1	A B C D	19	Add Units of Measurement			Not Available
1	A B C D	20	Convert Units of Measurement			
1	A B G	21	Define Mathematical Symbols (=, <, >, %)			Not Available
1	A B G	22	Real Number Properties (cumulative, associative, identity)			
1	A B G	23	Order of Operations			
1	C D	24	Solve Linear Equations			
1	D F	25	Problem Solving with Linear Equations			
1	F	26	Solve Linear Equations with Decimals			

Overall Process

The intent of the spreadsheet is that an instructor reviews the student's Diagnostic Score Report and circles/highlights the concepts that the student needs to study based on the four content areas in the first column. The student can use the last three columns as a check off list as the student proceeds through the concepts. Once the student has studied the material, he or she can either retake the TSI Assessment for Math or take the Central Texas College's College Prep Final Examination.

Two Options:

- Retake the TSI Assessment for Math
- Take the CTC College Prep Final Examination

Once the student passes the Final Exam, CTC will assign a temporary TSI waiver for the student.
The waiver is only good for CTC not another college.

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People's responses to the fact that I am a math major

- Wow--you must be really smart.
- Do you want to teach?
- I hate math.

https://weheartit.com/entry/50600146
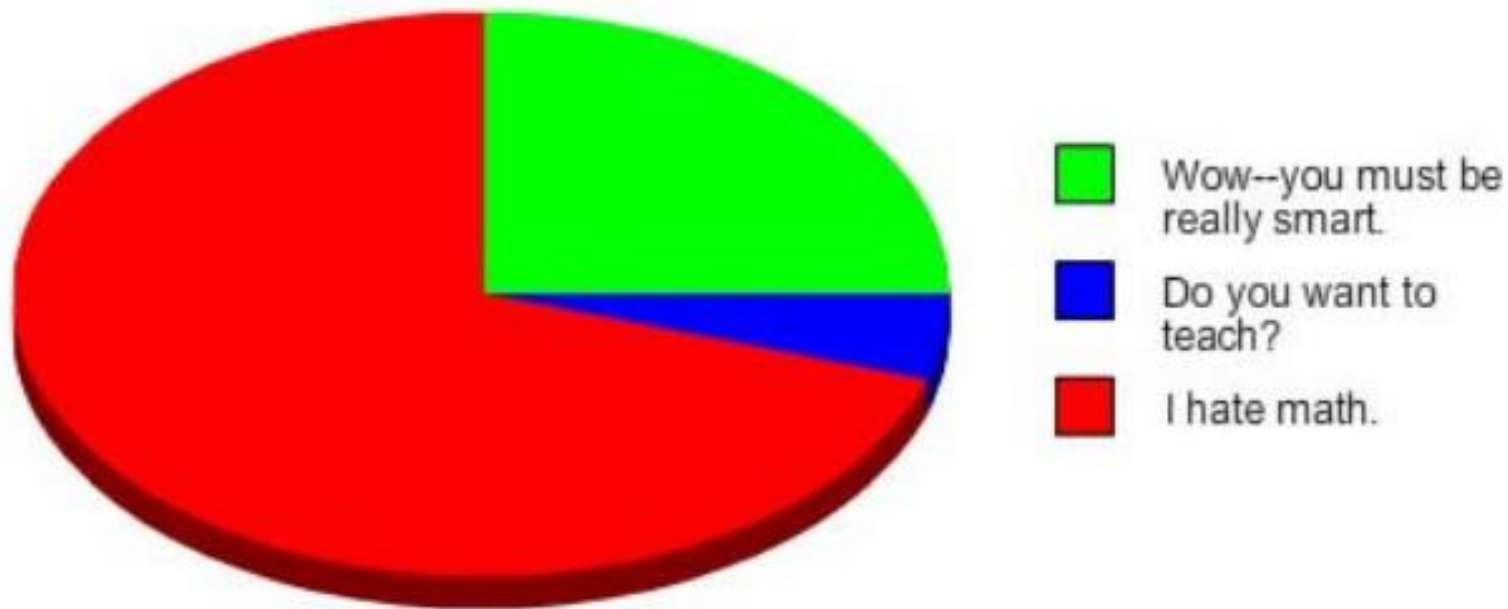
Low Cost Option in MyMathTest

Student TSIA Remediation Using My Math Test

Central Texas College has created a My Math Test (MMT) program for any CTC student to use as a tool for TSIA prep/remediation.

Cost: $12.00 to the student directly from Pearson.

Site: www.mymathtest.com

Create a course in MyMathTest by copying the master course ID provided by Central Texas College.

Students can then enroll in the copied course by using the course code created above.

MyMathTest Setup

The course contains two diagnostic tests: Beginning Algebra and Intermediate Algebra. They are separated into the two levels on the TSI Assessment. Each test has 50 problems; the students will have 120 minutes to complete each diagnostic.

It is best to complete both tests before starting the remediation practice, then you will have the whole picture of what is missing. Remediation can be done in the Study Plan. The results are already built based on what students get incorrect in the diagnostic test. Students can progress through the concepts by using the Practice Tool and the Quiz Me to prove Mastery. (We recommend using the Show All Chapters.) As mastery occurs the symbol will change to a graduation cap.

The course also contains two Final Exams: Beginning Algebra and Intermediate Algebra. Each test has 25 problems; the students have 120 minutes to complete each Final Exam.

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Options to become College Ready

Three Options:

- Retake the TSI Assessment for Math
- Complete the MyMathTest Final Examinations
- Take the CTC College Prep Final Examination

Once the student passes the Final Exam, CTC will assign a temporary TSI waiver for the student. The waiver is only good for CTC not another college.
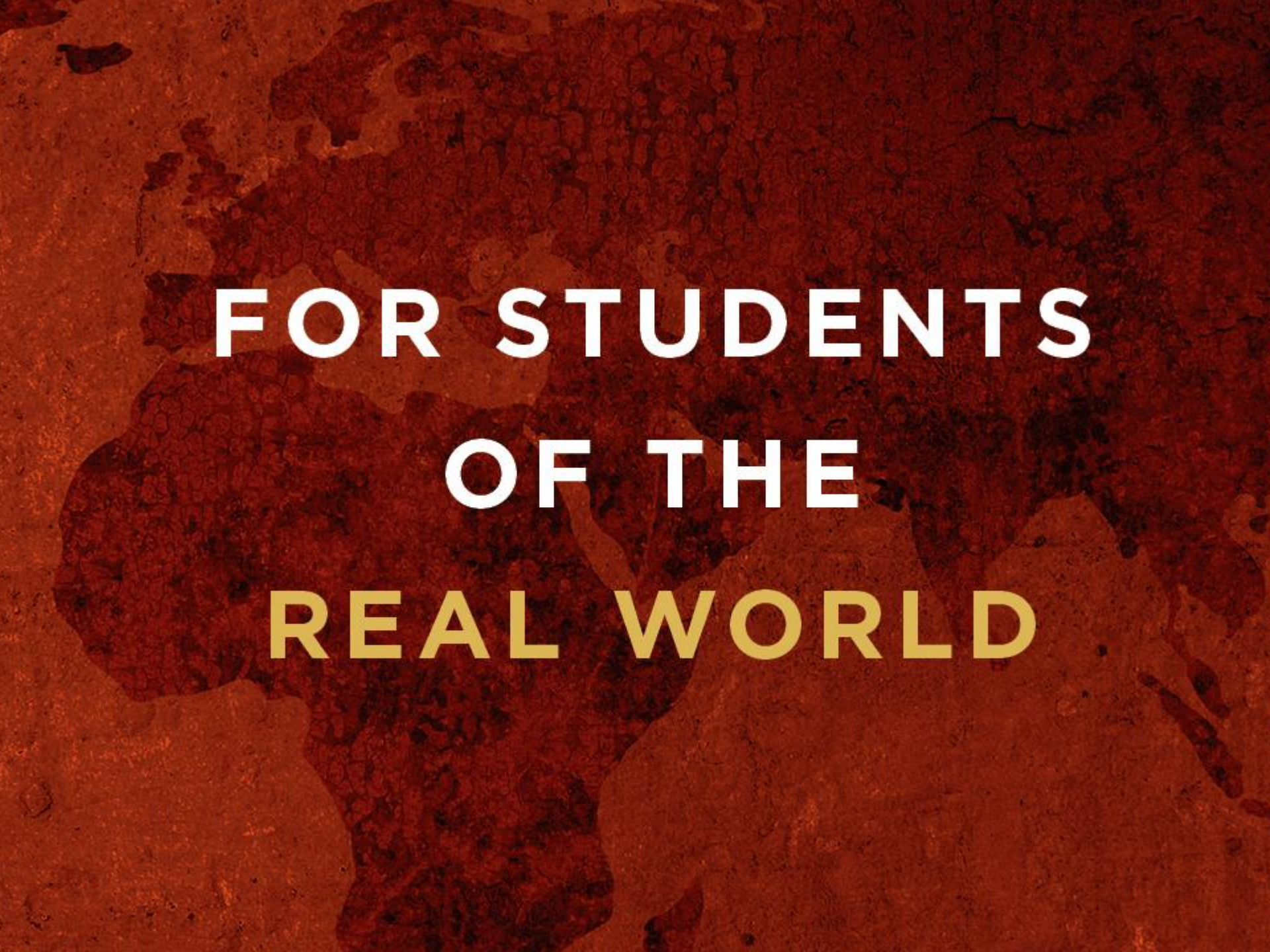
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CTC Math Express (Corequisite Math)

CATCH THE CTC MATH EXPRESS

Destination: Math Success
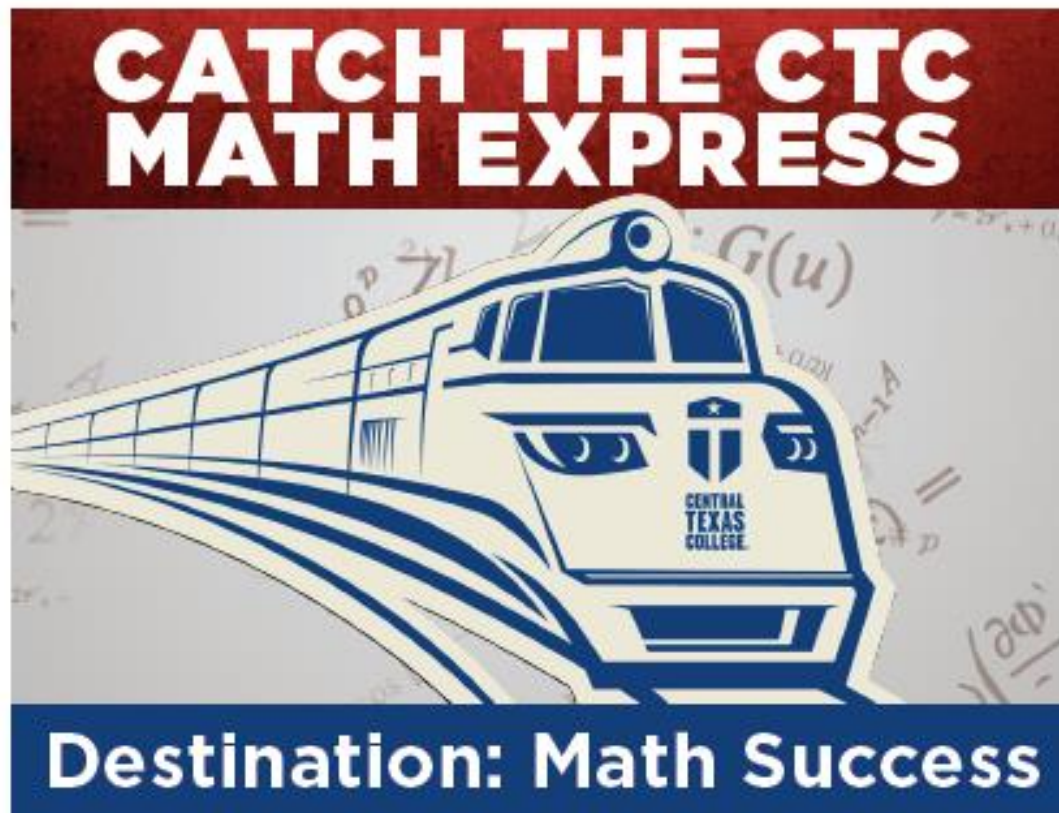
MATH 1332 Contemporary Mathematics	+	DSMA 0492 NCBO
MATH 1342 Elementary Statistical Methods	+	DSMA 0394 NCBO
MATH 1314 College Algebra	+	DSMA 0493 NCBO

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