Texas Medical Center – Scoring Sheet

Student Name: _____

Place a score (1-4) in each row corresponding to the student's college readiness level.
Exceeding College Ready (4): Substantially exceeds the performance expectations
College Ready (3): Shows proficiency in all of the performance expectations
Approaching College Ready (2): Meets only some of the performance expectations
Initiating College Ready (1): Does not yet meet the performance expectations

KEY COGNITIVE SKILLS	Student's Self-Assessment	Instructor's Score
Reasoning (constructs well-reasoned arguments to explain phenomena, validate conjectures, or support positions; gathers evidence to support arguments, findings, or lines of reasoning; supports or modifies claims based on the results of an inquiry)		
Problem Solving (analyzes the situation to identify the problem to be solved; develops and applies multiple strategies to solve problems; collects evidence and data systematically and directly relates them to solving a problem)		
Academic Behaviors (self-monitors learning needs and seeks assistance when needed; strives for accuracy and precision; perseveres to complete and master tasks)		
Work Habits (works independently)		

FOUNDATIONAL SKILLS	Student's Self-Assessment	Instructor's Score
Writing Across the Curriculum (writes clearly and coherently using standard writing conventions)		
Technology (uses technology to gather information)		

MATHEMATICS STANDARDS	Student's Self-Assessment	Instructor's Score
Geometric Reasoning (identifies, represents the features of plane and space figures; makes, tests, uses conjectures about one-, two-, and three-dimensional figures; makes connections between geometry and measurement; makes and validates geometric conjectures)		
Measurement Reasoning (determines indirect measurement of figures using scale drawings, similar figures, the Pythagorean Theorem, and basic trigonometry)		
Problem Solving and Reasoning (analyzes given information, formulates a plan or strategy, determines a solution, and justifies the solution)		
Connections (connects mathematics to the study of other disciplines)		

See reverse for comments.

Score	College Readiness Level
35-40	Exceeding College Ready
30-34	College Ready
15-29	Approaching College Ready
0-14	Initiating College Ready

Total Score: _____ _____

Grade: _____

See Scoring Guide for grade conversion chart.

C R A f T
College Readiness Assignments for Texas

Texas College and Career Readiness Initiatives

Texas Medical Center – Scoring Guide

*Note: The letters and numbers of the skills below refer to their designation
in the College and Career Readiness Standards.*

KEY COGNITIVE SKILLS

B. Reasoning

2. Construct well-reasoned arguments to explain phenomena, validate conjectures, or support positions.

College Ready Description: Student proposes an optimal location for the medical center based on interpreting the mathematical results in terms of the real-world situation and identifying limitations of the mathematical solution.

Evidence for Scoring: Student proposes putting the medical center in Caldwell (in the case of three cities) because that minimizes the combined flight, while noting that highway travel times might be excessive due to the rural location of Caldwell.

3. Gather evidence to support arguments, findings, or lines of reasoning.

College Ready Description: Student gathers data using a variety of mathematical methods and considers real-world factors to propose a location for the medical center.

Evidence for Scoring: Student uses The Geometer's Sketchpad® to compute the combined distances to three cities and experimentally determines the point at which that is minimized.

4. Support or modify claims based on the results of an inquiry.

College Ready Description: Student refines a hypothesis regarding an optimal location and adjusts that thinking in response to mathematical inquiry and consideration of real-world factors.

Evidence for Scoring: Student might have originally hypothesized Madsonville as the optimal site because of its location near the visual "center" of the region, but the student ultimately settles on Caldwell because calculations show it to be closer overall to the three cities.

C. Problem Solving

1. Analyze a situation to identify a problem to be solved.

College Ready Description: Student demonstrates a clear understanding of the problem by devising a geometrical approach to locating the optimal site for the medical center.

Evidence for Scoring: Student devises two definitions for "center" that capture the idea of minimizing transport time.

2. Develop and apply multiple strategies to solve problems.

College Ready Description: Student uses a range of standard mathematical methods, devices, techniques, and strategies to gather and analyze information necessary to draw conclusions that contribute to a proposal for the location of the medical center. Student interprets the mathematical results in light of some reasonable real-world considerations to draw conclusions that contribute to the proposal for the location of the medical center. Student identifies the limitations of a mathematical solution in solving the real-world problem of locating a medical center that serves several cities.

Evidence for Scoring: Student employs two mathematical definitions of center and modeling with Sketchpad®. Student observes that although Belton is equidistant from the towns, Caldwell lies closer to Houston, a city with about triple the metropolitan population of San Antonio. Student observes that the Fermat point lies in the middle of a forest and chooses a nearby town instead to reduce construction costs for the medical center.

3. **Collect evidence and data systematically and directly relate to solving a problem.**

College Ready Description: Student collects data directly related to drawing conclusions about an optimal location for the medical center. Student produces constructions accurately, including labeling, units, and organization. Student presents the collected data visually and defends interpreting the mathematical solution in light of real-world considerations.

Evidence for Scoring: Student measures the distances from proposed medical center sites to the cities to be served. Student's constructed perpendicular bisectors of the triangle's sides (used to construct the circumcenter) actually appear to be perpendicular to the sides and pass through their midpoints. Student labels both candidate towns on the map and argues for one based on the quality of the roads leading to that location.

D. Academic Behaviors

1. **Self-monitor learning needs and seek assistance when needed.**

College Ready Description: Student identifies areas of significant misunderstanding or difficulty and distinguishes these from questions whose solutions are not immediately obvious.

Evidence for Scoring: Student is able to ask informed questions of group members and instructor.

3. **Strive for accuracy and precision.**

College Ready Description: Student performs mathematical calculations correctly. Student produces constructions accurately, including labeling, units, and organization.

Evidence for Scoring: Student's sum of the distances from the Fermat point to the cities is correct. Student's constructed angle bisectors of the triangle (used to construct the centroid) actually appear to be angle bisectors.

4. **Persevere to complete and master tasks.**

College Ready Description: Student submits a final work product that reflects thorough understanding of the problem and meets all requirements of the assignment.

Evidence for Scoring: Student's report fully compares the pros and cons of the options and presents and defends a choice based on them.

E. Work Habits

1. **Work independently.**

College Ready Description: Student shows ability to work independently to develop ideas.

Evidence for Scoring: Student works independently to complete the assignment.

FOUNDATIONAL SKILLS

B. Writing Across the Curriculum

1. Write clearly and coherently using standard writing conventions.

College Ready Description: Student uses appropriate terminology and data expression to communicate information in a concise manner.

Evidence for Scoring: Student avoids ambiguity by referring to the Fermat point, the circumcenter, or the centroid of the triangle rather than to the "middle" or "center." Student uses proper grammar, mechanics, punctuation, and spelling.

E. Technology

1. Use technology to gather information.

College Ready Description: Student correctly uses Sketchpad® to gather data.

Evidence for Scoring: Student uses the measure and calculate tools to determine the sum of the distances from a hypothesized optimal point to the cities.

MATHEMATICS STANDARDS

III. Geometric Reasoning

A.1, 2. Figures and their properties.

College Ready Description: Student identifies and represents the features of plane and space figures. Student makes, tests, and uses conjectures about one-, two-, and three-dimensional figures and their properties.

Evidence for Scoring: Student constructs and uses drawings of plane and space figures to solve problems. Student uses Sketchpad® to find a geometric center.

C.3. Connections between geometry and other mathematical content strands.

College Ready Description: Student makes connections between geometry and measurement.

Evidence for Scoring: Student uses GPS coordinate information to find the geometric center or centroid.

D.1. Logic and reasoning in geometry.

College Ready Description: Student makes and validates geometric conjectures.

Evidence for Scoring: Student uses drawings to investigate patterns and make conjectures about geometric properties or figures. Student uses a map and draws or uses Sketchpad® to find a central location for the medical center.

IV. Measurement Reasoning

C.3. Measurement involving geometry and algebra.

College Ready Description: Student determines indirect measurement of figures using scale drawings, similar figures, the Pythagorean theorem, and basic trigonometry.

Evidence for Scoring: Student solves problems involving distance between to points on a coordinate plane and makes algebraic and geometric connections. Student finds a location for the medical center located at the center of three points.

VIII. Problem Solving and Reasoning

A.1, 2, 3, 4. Mathematical problem solving.

College Ready Description: Student analyzes given information, formulates a plan or strategy, determines a solution, and justifies the solution.

Evidence for Scoring: Student identifies information that is important in solving a problem. Student identifies factors that are important in finding a location for the medical center.

X. Connections

A.2. Connections among the strands of mathematics.

College Ready Description: Student connects mathematics to the study of other disciplines.

Evidence for Scoring: Student uses mathematics to solve problems across disciplines. Student uses mathematics to solve the business problem of locating the medical center.

Texas Medical Center – Scoring Instructions

Place a score (1-4) in each row of the scoring sheet corresponding to the student's college readiness level.

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Suggested Grade Conversion:

This chart reflects equal weight given to each skill. As key cognitive skills, foundational skills, and discipline content knowledge are all important elements of college readiness, we recommend this grading approach. However, you may certainly choose to implement different weights to particular scales and assign a grade at your discretion.

Score	Grade		Score	Grade		Score	Grade		Score	Grade
40	100		32	89		24	79		16	71
39	99		31	87		23	78		15	70
38	98		30	85		22	77		14	68
37	97		29	84		21	76		13	66
36	96		28	83		20	75		12	64
35	95		27	82		19	74		11	62
34	93		26	81		18	73		10	60
33	91		25	80		17	72			