

Math Textbook Reviews:

Section 1, August 2014

Publisher: Cengage/National Geographic

Textbook Title: Calculus 10e

Grade band: High school advanced math

Focus Metrics	
A. In any single course, 100% of the content standards are present in the materials for that course	Yes
B. Topics from earlier courses are used to support course-level work. Content from prior courseis clearly indicated as such.	Yes
Does this textbook meet the requirements for focus?	Yes
Justification/Notes: Alignment: The separate correlation document provided by the publisher had multiple errors and was of little value. The correlation document in the front of the textbook was correct. Chapter P was clearly marked Preparation for Calculus and Appendix C was labeled Precalculus Review. Chapters 11, 13, 14, 15, Lesson 7.3 on volume using the shell method, Lesson 10-6 on Polar Equations of conics and Kepler's Laws, and Lesson 5.8 on Hyperbolic Functions contained material not required by The College Board.	

Rigor Metrics	
A. For the widely applicable prerequisites, the three aspects of rigor are given full attention: conceptual understanding, procedural fluency, and application.	Yes
B. High quality problems and questions designed to invite exploration and support conceptual understanding are included for content standards and clusters that explicitly call for it. A variety of conceptual problems enable students to connect mathematical ideas and representations, and transfer understandings to new situations.	Yes
C. Materials support the development of fluency, including opportunities to practice algebraic manipulation and computation, appropriately apply tools, and use technology. Sometimes problems are purely procedural, none are based on non-mathematical tricks or mnemonics.	Yes
Does this textbook meet the requirements for rigor?	Yes
Justification/Notes: Rigor: Lessons contain problems to be solved algebraically, graphically, by writing explanations, and error analysis. Some lessons contain projects that students can use to further explore the concept being taught. Others contain Putnam Exam Challenge problems developed by the Committee on the Putnam Prize Competition. Each problem set contains application problems. At the end of each chapter there are review exercises, a problem solving challenge section of about 20 problems, and an AP Exam section with multiple choice and free response practice problems that would appear on the AP Exam. Using the lessons on the Fundamental Theorem of Calculus (4.4) as an example, there were 4 graphical reasoning problems, 83 integration problems to solve with increasing difficulty, 2	

writing about concepts problems, 12 application word problems, 1 proof, 6 in-depth analysis problems, and 4 error analysis problems. A section project was also supplied.

Were both non-negotiables in Section I met? Yes

Optional Additional Comments from Reviewers: n/a

SECTION 2

	Number rating	Comments
6a Materials connect the math practices to the content standards in meaningful and intentional ways. The development of the practices is well-grounded in content and not in isolation.	1	Mathematical Practices are present but not explicitly stated or referred to.
6b Materials include teacher-directed materials that explain the role of the practice standards in the classroom and in students' mathematical development. Problems and activities present opportunities for students to make use of an exhibit the practices as they work on content.	0	No teacher directed materials that explain the role of the practice standards.
6c Particular attention is given to: MP3 - Construct viable arguments and critique the reasoning of others: Students are encouraged to create and test mathematical arguments, make generalizations and provide justifications, particularly in standards that explicitly call for it, in a manner of reasoning appropriate to the course.	1	Writing about concepts and How do you see it could launch into critiquing the reasoning of others but it would have to be teacher planned and facilitated.

6d Particular attention is given to: MP4 - Model with mathematics: Students should be given opportunities to apply mathematics learned in novel situations, with an appropriate tradeoff between the complexity and novelty of the problem and the newness of the content they are asked to use. Modeling problems should draw heavily from major work of the grade level or securely-held content, integrated across multiple domains/clusters where appropriate. Standards with explicit expectations for modeling are indicated with a star (*).	2	
7a Connections are made within a course between clusters and domains, where these connections are appropriate and natural.	2	
7b Materials are vertically coherent with previous courses and these connections are made clear in the materials. Materials include attention to the development of the math practices appropriate to the level of the course.	2	
8a Materials support teachers in ways such as the following: planning(including ideas for pacing), introducing lessons, assessment types, vocabulary.	2	<p>Materials provided for teachers –</p> <ul style="list-style-type: none"> * Power Lecture DVD <ul style="list-style-type: none"> • Power-Point Lectures • Power-Point Images and a jpg image library • Teacher Resource Guide <ul style="list-style-type: none"> ○ Chapter Commentary

		<ul style="list-style-type: none"> ○ Homework Quizzes ○ AP Focus ○ AP Practice Exams ○ AP BC Vector Topics • Examview Test Bank • Join In Clicker Questions • Solution Set Builder (builds answer keys for students) <p>* Hard Copy</p> <ul style="list-style-type: none"> • Complete Solutions • Fast Track to A 5 (tips, notes, sample problems) • Teacher's Resource Guide <ul style="list-style-type: none"> ○ Teaching tips ○ Suggested Homework ○ Homework Quizzes and answers ○ AP Focus ○ BC Vector Topics ○ Practice Exam ○ Pacing Guide ○ AP Tips for teaching the material • Student Solutions Manual for Odd Problems <p>The Teacher's Resource Guide has a wealth of information to help teachers be successful.</p>
8b Materials are clear and easy to read for students, teachers, parents. The design and graphics do not distract from the mathematics.	2	
8c. Materials include supports for all learners, e.g., EL, students who are below grade level, advanced students.	0	No EL material or material for below grade level. Putnam Exam Challenge and for further information questions provide some above grade level material.