

# Math Textbook Reviews:

Section 1, Aug 2014

Publisher: Cengage/National Geographic

Textbook Title: Advanced Algebra and Trigonometry  
Grade band: High school advanced math

Focus Metrics	
A. In any single course, materials are designed so teachers and students spend at least 50% of their time on the Widely Applicable Prerequisites (see Appendix B).	Yes
B. Topics from future courses are clearly identified as such in the materials and do not detract from focus.	Yes
Does this textbook meet the requirements for focus?	Yes
Justification/Notes: Alignment: The new correlation document supplied by the publisher shows that all standards have been met. An extension document will be supplied online and in print (upon request) which contains full lessons (instruction, examples, and problem sets) on standards not in the printed text. Before beginning with chapter 1, the textbook has a chapter labeled Pre-requisites which we assumed was review of previous material.	

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: There are multiple places where students use a graphing utility to solve problems as well as algebraically. At the end of each lesson, there are many practice problems to address skill and fluency. There are multiple levels of application exercises including real world applications. At the end of each chapter there is a P.S. Problem Solving and a Proofs in Mathematics section. To address conceptual understanding, the exploration problems and the How Do You See It problems push for understanding and require students to explain their reasoning. For example, The lesson on Right Triangle Trigonometry (lesson 6.2) at the end of the lesson, there were 64 practice problems, 11 application problems, 11 Writing in Mathematics problems, 2 technology exercises, 9 critical thinking exercises, and 3 preview exercises.	

**Were both non-negotiables in Section I met? Yes**

Optional Additional Comments from Reviewers: n/a

**SECTION 2**

Cengage	Algebra and Trigonometry	
	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.	1	There is a correlation document provided but it only cites a few examples and does not cite where practices are used throughout the entire text. Problems are presented that allow students to make use of the Mathematical Practices. Problems are presented that allow students to make use of the Mathematical Practices.
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.	2	Problems are presented that allow students to make use of the Mathematical Practices. For example the Exploration (MP 3), how do you see it, and think about its as shown on pg 186. .
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	2	

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 (*).		
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 teacher include:</p> <p>PowerLecture with ExamView that include:</p> <p>PowerPoint lectures</p> <p>PowerPoint Image Library</p> <p>JPEG Image Library</p> <p>ExamView Computerized Testing with Test bank</p> <p>Hard Copy:</p> <p>Note Taking Guide</p> <p>Student Study and Solutions Manual</p> <p>Test Bank</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 evidence is shown for support for all learners.