

MATH 1000 READING CHECK 1

MONDAY, JANUARY 15

These questions concern the introduction of *How Not to Be Wrong* by Jordan Ellenberg, titled “When am I Going to Use This?”

Starting with the second day of class, reading checks very similar to this one will be administered at the beginning of every class period. These are not meant as an assessment of your knowledge or skill set, but rather as purely a check that you read the assigned portion of the book carefully. If you correctly answer at least two-thirds of the questions correctly (the number of questions may vary), you will get full credit for the reading check. If you correctly answer fewer than two-thirds of the questions correctly, you will get credit for the portion you correctly answered. For example: on this particular assignment, $5/8$ would receive 62.5% credit, while $6/8$ would receive 100% credit.

- (1) How does Jordan describe interactions in which students ask why they need to perform tedious, repetitive tasks that they don't imagine could help them in their real life, and teachers respond with the explanation that these skills might be directly relevant depending on the students' career choices?
 - a) This is an insightful and helpful response from the instructor, because there are millions of jobs that require the specific algebra, trigonometry, and calculus skills in question.
 - b) This is an oversimplification of the truth, which is that these skills are prerequisites for more advanced mathematical skills that will likely be relevant to the students' careers.
 - c) It's a lie, and the teacher and student both know it's a lie.

- (2) Which of the following describes Abraham Wald?
- a) He was born in the United States to Austrian immigrants who came to the United States to escape the Nazis during World War II.
 - b) He moved from Austria to the United States to accept an academic fellowship after the Nazis conquered Austria prior to World War II, then he helped the United States during the war.
 - c) He remained in hiding in Austria during World War II, then immigrated to the United States to work with the Statistical Research Group after the war.
- (3) Which of the following best describes Abraham Wald's recommendation about armoring aircraft?
- a) Put more armor on the portions of the aircraft that, amongst the returning aircraft, have more bullet holes.
 - b) Put more armor on the portions of the aircraft that, amongst the returning aircraft, have fewer bullet holes.
 - c) Evenly distribute the armor regardless of the data from the returning aircraft.
- (4) The Abraham Wald story is a fundamental example of the statistical phenomenon known as *survivorship bias*. What does Jordan use as an immediate follow-up example of this phenomenon?
- a) The incubation and marketing of mutual funds.
 - b) Streaks of made free throws in a basketball game.
 - c) Trends in the Dow Jones Industrial Average.

- (5) Which sentence best describes Jordan's view on how mathematics relates to common sense?
- a) Mathematics succeeds where common sense fails.
 - b) Mathematics is the extension of common sense by other means.
 - c) Common sense is a myth, while mathematics is the path to enlightenment.
- (6) What mathematical principle did Jordan gain an understanding of by looking at the holes in a wood panel on his parents' stereo?
- a) The transitive property: If $a = b$ and $b = c$, then $a = c$.
 - b) Commutativity of addition: $a + b$ is the same as $b + a$.
 - c) Commutativity of multiplication: $a \times b$ is the same as $b \times a$.
- (7) What kind of mathematics does Jordan wish to expose and discuss in this book?
- a) simple and shallow
 - b) simple and profound
 - c) complicated and shallow
 - d) complicated and profound
- (8) Which describes Jordan's professional mathematics career?
- a) He has focused on concrete applications of deep, advanced mathematics to areas such as physics and biology.
 - b) He has focused on researching different methods of educating people in mathematics, ranging from early childhood development to adulthood.
 - c) He does highly abstract pure mathematics research, including problems that require years of graduate training to even understand the questions and terminology.