Q. What if everyone who took the SAT guessed on every multiple-choice question? How many perfect scores would there be?
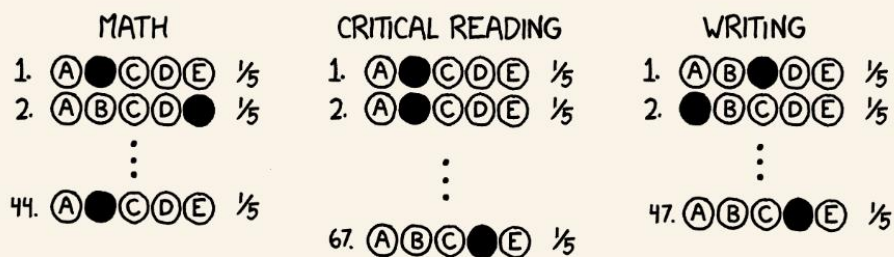
—Rob Balder

A. NONE.

The SAT is a standardized test given to American high school students. The scoring is such that under certain circumstances, guessing an answer can be a good strategy. But what if you *guessed* on everything?

Not all of the SAT is multiple-choice, so let's focus on the multiple-choice questions to keep things simple. We'll assume everyone gets the essay questions and fill-in-the-number sections correct.

In the 2014 version of the SAT, there were 44 multiple-choice questions in the math (quantitative) section, 67 in the critical reading (qualitative) section, and 47 in the newfangled[1] writing section. Each question has five options, so a random guess has a 20 percent chance of being right.

MATH

1. (A) ● (C)(D)(E) ⅕
2. (A)(B)(C)(D) ● ⅕
⋮
44. (A) ● (C)(D)(E) ⅕

CRITICAL READING

1. (A) ● (C)(D)(E) ⅕
2. (A) ● (C)(D)(E) ⅕
⋮
67. (A)(B)(C) ● (E) ⅕

WRITING

1. (A)(B) ● (D)(E) ⅕
2. ● (B)(C)(D)(E) ⅕
⋮
47. (A)(B)(C) ● (E) ⅕

The probability of getting all 158 questions right is:

$$\frac{1}{5^{44}} \times \frac{1}{5^{67}} \times \frac{1}{5^{47}} \approx \frac{1}{2.7 \times 10^{110}}$$

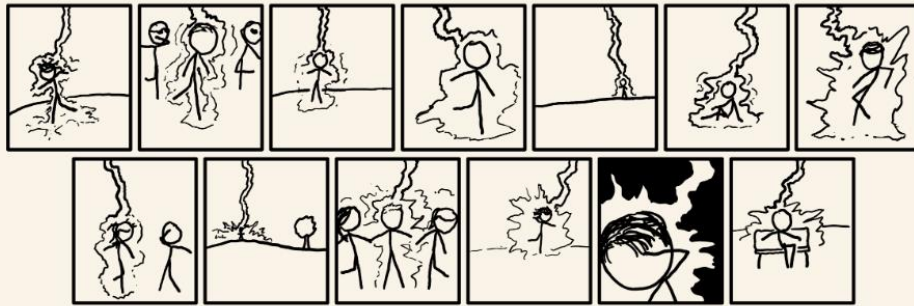*That's one in 27 quinquatrigintillion.*

If all four million 17-year-olds took the SAT, and they all guessed randomly, it's virtually certain that there would be no perfect scores on any of the three sections.

How certain is it? Well, if they each used a computer to take the

test a million times each day, and continued this every day for five billion years—until the Sun expanded to a red giant and the Earth was charred to a cinder—the chance of any of them ever getting a perfect score on just the math section would be about 0.0001 percent.

How unlikely is that? Each year something like 500 Americans are struck by lightning (based on an average of 45 lightning deaths and a 9–10 percent fatality rate). This suggests that the odds of any one American being hit in a given year are about 1 in 700,000.[2]

This means that the odds of acing the SAT by guessing are worse than the odds of every living ex-President and every member of the main cast of *Firefly* all being independently struck by lightning . . . on the same day.

To everyone taking the SAT this year, good luck—but it won't be enough.

1 I took the SAT a long time ago, okay?

2 See: xkcd, "Conditional Risk," *http://xkcd.com/795/*.