

## 7 DIFFERENCES BETWEEN THE SAT / ACT MATH

1. **Unlike the SAT, the ACT does NOT penalize you for incorrect answers.** You should answer every problem. Statistically, you would get 12 correct answers (out of 60) if you randomly guessed. You have nothing to lose, and much to gain, if you guess! Psychotically forcing students to guess on the most important tests of their lives is oddly sadistic. Because you are not gambling as much when you take the ACT, you can focus more of the test and less on your insecurities.
2. **Unlike the SAT, the ACT does not give you the formulas on the first page.** You must remember about 30 common formulas that are commonly used on the test. Most of these formulas involve geometry and trigonometry. Occasionally, the ACT people will give you a formula to solve a problem if the formula is relatively uncommon or esoteric.
3. **Unlike the SAT, the ACT does not draw figures to scale (or at least they say they are not "necessarily" drawn to scale.** On the SAT, if a problem does not specifically state that it is "NOT DRAWN TO SCALE", you can correctly assume that it is "DRAWN TO SCALE". Because of this principle, you can often circumvent geometry by making good guesses about reality. The ACT specifically states that "FIGURES ARE NOT NECESSARILY DRAWN TO SCALE." This means that in most cases, you have to rely on math, not your visual acuity, to correctly answer problems. However, almost all figures on the ACT are actually fairly close to scale. This means that if you have no other means to answer the problem, you can, as a last resort, make a good guess.
4. **Unlike the SAT, the ACT allows numbers that are not "real" numbers.** Real numbers do not include numbers such as the  $\sqrt{-1}$ . The symbol "*i*" is used to indicate what is referred to as an *imaginary* number. These are not creations of Disney, but are serious mathematical concepts. Some specialized knowledge will be required to answer these questions.
5. **Unlike the SAT, the ACT has no "Student Response" section.** The "Student Response" section forces student to learn a special grid system of answering questions. It is both irritation and stupid. Taking the ACT is has less to do with peculiar SAT knowledge that has no real value.
6. **Unlike the SAT, the ACT normally has 2-5 questions that require some basic knowledge of trigonometry, logarithms, and matrices.** If you have never heard of SOCATOA, you will need to learn why it is important. SOCATOA is a way of helping you remember how to find the Sine, Cosine and Tangent of an angle in a right triangle. Log and matrix rules are important!
7. **Unlike the SAT, the ACT is shorter and has a less complex format.** Because the ACT math is only a *single* 60 minute section (as opposed to the SAT's 3 sections totaling 70 minutes), you will probably not get physically as exhausted.

# 7 SIMILARITIES BETWEEN THE SAT / ACT MATH

1. **Like the SAT, strategies that have little to do with mathematical knowledge are often important.** Although the ACT is more mathematically straightforward, it is a serious mistake to believe that it requires nothing more than math knowledge.

2. **Like the SAT, the ACT problems get more and more difficult as you get further along in a section.** This helps students maintain a certain pace. The first half of both tests are relatively simple. Almost all test-takers do well on these simple questions. The difficulty only begins after number 30. Students should spend more time with questions as they become more difficult.

3. **Both tests normally present choices in order of increased size. For example**

If 115% of a number is 460, what is 75% of the number?

(A) 280      (B) 300      (C) 320      (D) 345      (E) 400

Note that choice (A) is the smallest and choice (E) is the largest. On some questions choice (A) might be the largest and choice (E) the smallest. However, almost all questions have direction. This helps on certain strategies, such as "working backward" which will be discussed later.

4. **Both tests use strategically useful common language.** Phrases such as "what is  $x$  in terms of  $y$ ", "standard  $(x, y)$  coordinate plane", "which of the following expressions", "the measure of angle", "for all pairs of numbers", "common set", and many others are common to both tests. Familiarity with such phrases helps on certain strategies, such as "substitution" which will be discussed later.

5. **Both tests allow the use of calculators.** This is not so important on the SAT, but VERY important on the ACT. The SAT math is simple, and the use of a calculator is often unnecessary. However, the ACT has several questions that make the calculator a valuable tool.

6. **Both tests punish you for sloppy reading and imprecise calculations.** This is very important! If a question asks you about the *circumference* of an object, one of the answers will include the *area*. Both the SAT and ACT people know that this is a common mistake. For example, one recent question asked for the area of a square that was circumscribed about a circle which had a radius of 7. Incorrect choices included the circumference of the circle, perimeter of the square, and the square of the radius. **Red ACT page 173 # 38.** Both tests will include choices that make it easy to confuse "odd versus even", "negatives versus positives", and  $x$  versus  $y$  mistakes.

7. **Both tests are very unlike the grading system your school uses.** An average SAT (500 -550) and an average ACT score (17-25) require you to know how to answer around 50% of the test. While 50% at school will be either a failure or an embarrassment, on both the SAT and ACT they are the norm! The best strategies in both exams include the following: Don't make a lot of careless errors on the easy questions (the first half), and pick your battles well on the last half. Even if your math skills aren't great, there are always a few difficult questions that can be answered using limited math skills.