

# ACT Prep: Math

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# Overview of the ACT

1. English—45 minutes
  - 75 questions
2. Math—60 minutes
  - 60 questions
3. Reading—35 minutes
  - 40 questions
4. Science Reasoning—35 minutes
  - 40 questions

## ACT Essentials—Practical Tips

1. Arrive Early, with a PHOTO ID—avoid stress on test day
2. Be Comfortable
3. Plenty of Pencils (w/good erasers!)
4. LEGAL calculator (and backup)
5. Sleep as much as (or *slightly* more than) normal, starting two days before
6. Eat a good, light, **normal** breakfast
  - Bring a snack!
7. Be serious but CONFIDENT

# What to Bring (and not to bring) on ACT test day.

## PACK IT

- › A printed copy of your admission ticket
- › An accepted form of photo identification (OS ID or DL)
- › Sharpened, soft lead No. 2 pencils with good erasers (no mechanical pencils or ink pens)
- › A watch to pace yourself (remember to turn off alarms) No SMART watches.
- › A permitted calculator for the math test
- › A back up calculator and/or batteries
- › Snacks and/or a drink (for breaks outside of the testing room)

## LEAVE IT

- › Highlighters, colored pens or pencils, or corrections tape
- › Any electronic device, other than a permitted calculator
- › Books, dictionaries, or reading material
- › Scratch paper, notes or other aids

# Calculators

- › Legal Calculators
- › Use a calculator that you are accustomed to using.
- › You may not share calculators.
- › Bring a back up calculator and/or batteries.

## What's on the math test?

- › 60 minutes for 60 questions
  - One minute per question, but not all questions are created equal
- › Number and Quantity (7-10%)
- › Algebra (12-15%)
- › Functions (12-15%)
- › Geometry (12-15%)
- › Statistics and Probability (8-12%)
- › Integrating Essential Skills (40-43%)
- › Modeling (>25%)

# What's your goal?

- › See page 53.
- › ACT benchmark of 22 = approximately 30 correct problems
- › Place into College Algebra at JCCC with an ACT of 22 = 30 problems correct

*\* Note: The number of correct problems needed for each score may vary slightly from test to test.*

# What's your goal?

## › Kansas Qualified Admissions

### **ESU, PSU, FHSU, & WSU:**

- Cumulative High School GPA 2.25+ or ACT 21+ (SAT 1060)\*

### **K-State:**

- Cumulative High School GPA 3.25+ or ACT 21+ (SAT 1060)\*

### **KU:**

- Cumulative High School GPA 3.25+  
**OR** Cumulative GPA 2.0+ and ACT 21+ (SAT 1060)\*

### **ALL Institutions Require:**

- Cumulative GPA 2.0+ for College Credits earned in High School



## ACT Essentials—Preparation Tips

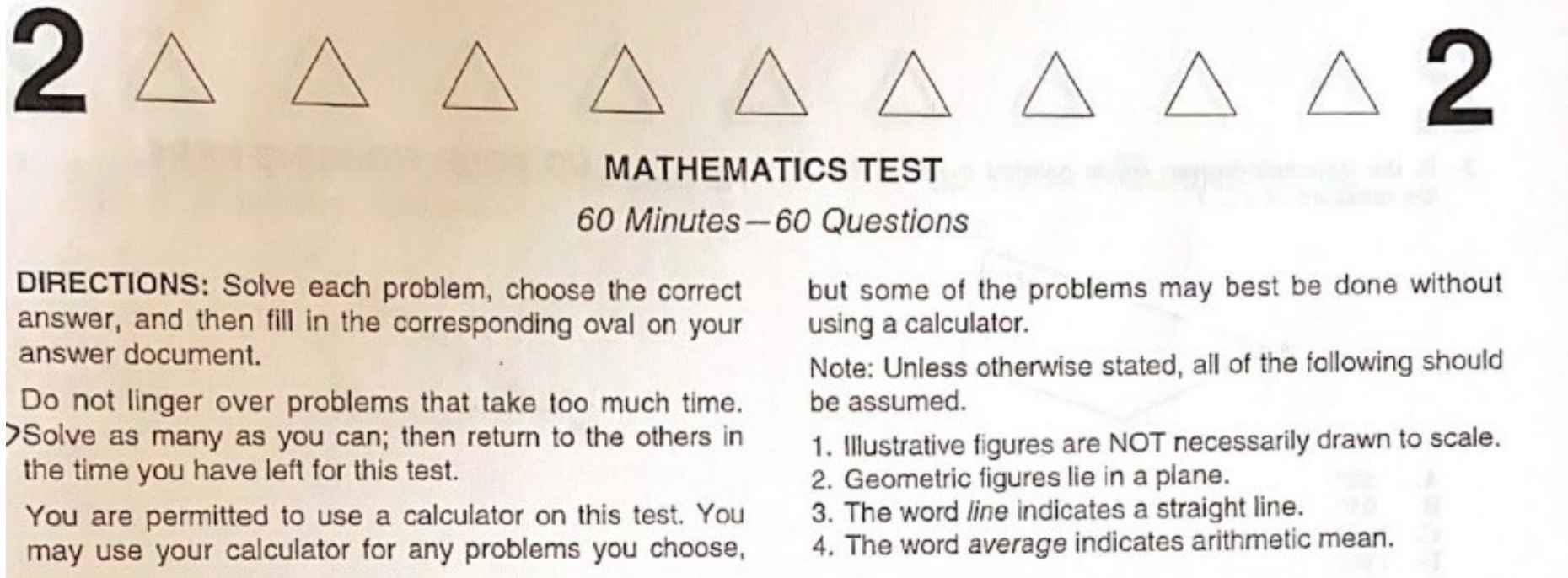
1. Practice with focus on smaller chunks on toughest sections
2. Take a full practice test under timed conditions (and read answer explanations!)
3. Think metacognitively—why did I miss it?
4. Know your strengths and weaknesses
5. Read the directions ahead of time (pg. 14)










## ACT Essentials—Test-taking Tips

1. Don't panic
2. *Don't* read the directions on test day
3. Don't put your head down
4. Bubble by page
5. Read carefully
6. Answer every question
7. Pay attention to the time—pace yourself

# ACT Essentials—Preparation Tips

Read the directions NOW. (pg. 14)



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**MATHEMATICS TEST**  
*60 Minutes—60 Questions*

**DIRECTIONS:** Solve each problem, choose the correct answer, and then fill in the corresponding oval on your answer document.

Do not linger over problems that take too much time.  
Solve as many as you can; then return to the others in the time you have left for this test.

You are permitted to use a calculator on this test. You may use your calculator for any problems you choose,

but some of the problems may best be done without using a calculator.

Note: Unless otherwise stated, all of the following should be assumed.

1. Illustrative figures are NOT necessarily drawn to scale.
2. Geometric figures lie in a plane.
3. The word *line* indicates a straight line.
4. The word *average* indicates arithmetic mean.

## Timing

- › 60 questions . . . 60 minutes.
  - Spend 30 seconds on problems 1 – 20.
  - Spend 60 seconds on problems 21 – 40.
  - Spend 90 seconds on problems 41 – 60.
- › If you're down to your last minute, be sure every question gets an answer. Choose the **same** letter and bubble it all the way down.
- › Keep your goal in mind! If you only need 40 questions correct, then it's ok to spend more time on the first half of the test.

# Big Picture Math Strategies

- Pace yourself.
- Answer the easy questions first. Star the problems you want to come back to.
- Draw and label diagrams. Figures are not necessarily drawn to scale (but they usually are).
- Watch out for answers to steps along the way.
- Be careful with negative signs.
- You're allowed to use a calculator, but it won't help you unless you know how to approach the problems.
- Do a ton of practice and **understand every single mistake.**

*Don't practice until you get it right. Practice until you can't get it wrong!*

# Big Picture Math Strategies

Approach every math question with the same method.

1. Read the problem carefully.
  - a) Underline the important information.
  - b) Circle what the question is specifically asking you to solve for.
2. Look at the information provided in the question and in the answer choices.
3. Solve.
  - a) Backsolve. Substitute numbers from the answer choices as your variables. Start with the middle number—if it doesn't work, you'll know whether to choose a higher or lower number.
  - b) Pick numbers. Choose numbers that are easy to work with. Avoid using 0 and 1.
  - c) Use traditional math.
  - d) Strategically guess. Cross out answers that you know are wrong. Avoid non-answers.
4. Check to make sure that you answered the specific question that was asked.

# Math Formulas

- › Know number properties
  - Odds, evens, prime numbers, order of operations
- › Understand math relationships
  - Know the difference between values, ratios, and percents.
  - Be able to change back and forth from percents to decimals to fractions.
- › Know your triangles
  - 30-60-90
  - 45-45-90
  - Pythagorean Triples
- › Find Common shapes
  - Break complex shapes into simpler figures like triangles and rectangles

# Problem Analysis

As we work the problems, be prepared to answer these questions.

- › What strategies did you use?
  - Were they helpful?
  - Why or why not?
- › Why did you miss the problems you missed?
  - Content knowledge?
  - Careless mistakes?
  - Time?
- › Answer key with reporting categories – pg. 50



# Resources

- › [www.act.org](http://www.act.org)
- › <https://www.kaptest.com/study/act/10-must-know-act-math-tips/>
- › Free practice tests are available through the Johnson County library website: <http://www.jocolibrary.org/> Go to Research, All Topics, College Bound & Test Prep, Learning Express Library, College Admissions Test Prep, ACT practice tests (others are available). You will need your library card to sign in.
- › Free practice tests are available through the OS library.
- › Test Information Release: April, June & December tests \$30
- › [www.osact.weebly.com](http://www.osact.weebly.com)