Maysville Community & Technical College

ACT Prep

Maysville CTC

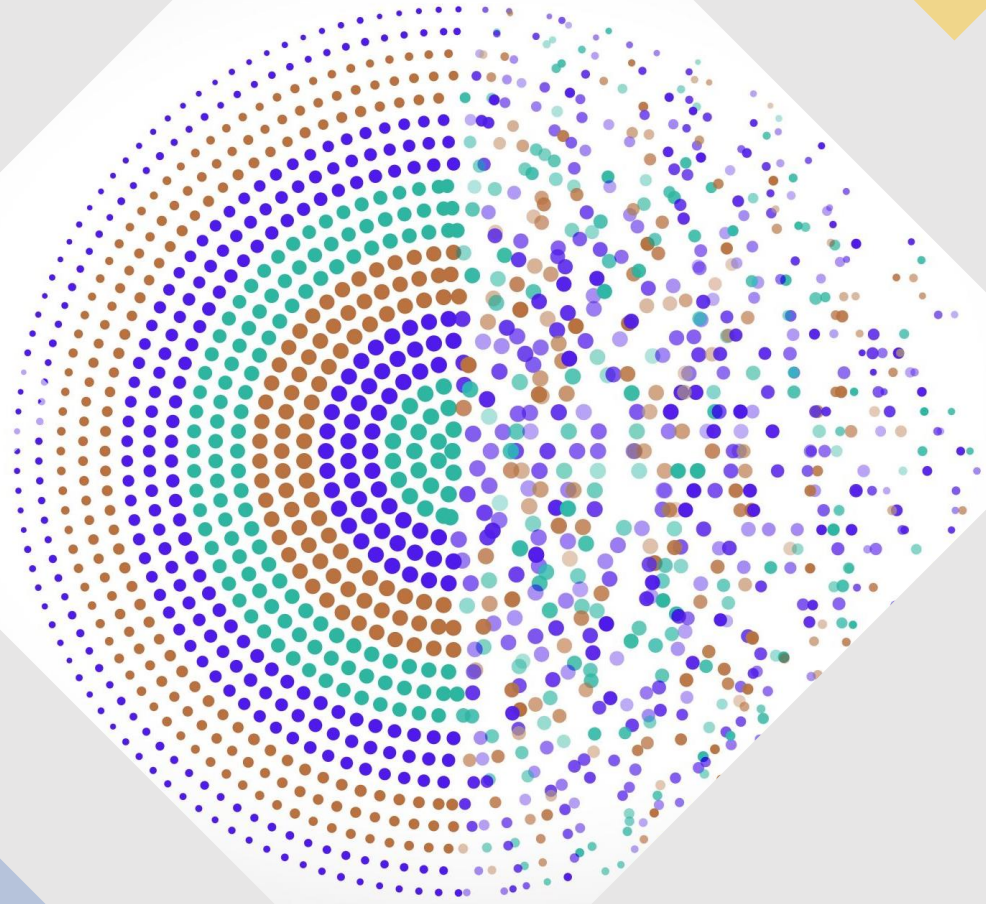
3/7/2024

Outline

- Benefits of scoring well
- How to reach your goal
- Graphing calculator review
- Math facts to remember
- Practice problems
- Questions

Benefits of Scoring Well

ACT Prep



College Admissions

- Source: https://moreheadstate.edu/admissions/howtoapply/ - Accessed 3/2/2023

APPLICATION BASICS

Applying to Morehead State is easy. Most future students simply follow these steps:

1. **Apply online:** Complete our online application (you'll first be asked to create an account).
2. **Submit transcripts:** Send us official high school transcripts (or GED scores and certificate).

We generally don't require ACT/SAT test scores for undergraduate admission. But scores are required for scholarship eligibility, placement, or admission to certain programs.

Scholarships

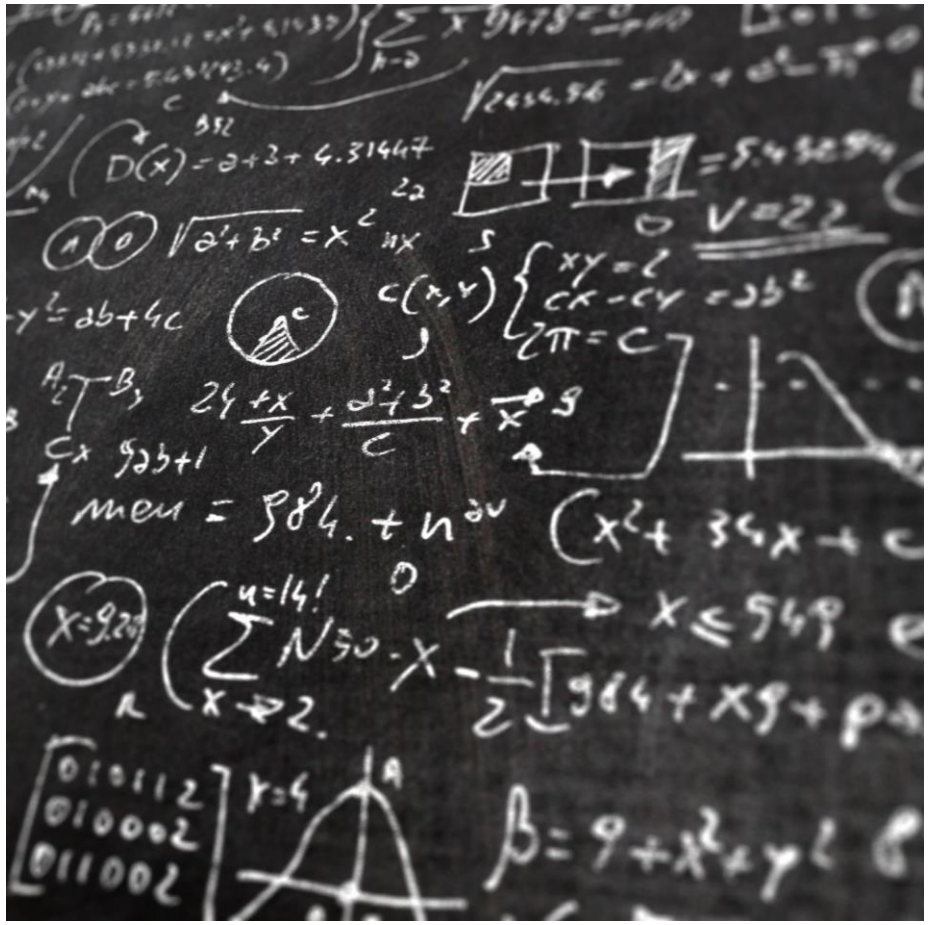
- Source: https://moreheadstate.edu/admissions/scholarships/kentucky

AUTOMATIC INCOMING STUDENT SCHOLARSHIPS

Scholarship	Eligibility Requirements	Value
Commonwealth Scholarship	3.75 GPA and 28 ACT composite	$9,000
Governor Awards** (Alumnus of GSP, GSA, GSE)	Alumnus of one of these three programs; 23 ACT & 3.0 GPA	$8,000
Governor Awards+** (Alumnus of GSP, GSA, GSE)	Alumnus of one of these three programs; 25 ACT & 3.5 GPA	$10,000
Kentucky Scholars Award**	25 ACT, 3.25 GPA	$7,000
Dean's Scholar Award***	21 ACT, 3.25 GPA	$4,000
Alumni Scholarship	child, grandchild or spouse of an active MSU alumnus	$1,000
Valedictorian Scholarship	Valedictorian of your graduating class	$1,000 for one year
Rogers Scholar Award***	22 ACT, 3.5 GPA & Rogers Scholar alumnus	full tuition
Rogers Scholar Award+***	28 ACT, 3.75 GPA & Rogers Scholar alumnus	full tuition & housing

Math Course Placement

- College Algebra with Lab (5 credit hours, $910 tuition)
  - Math ACT 19 – 21
- College Algebra with out Lab (3 credit hours, $546 tuition)
  - Math ACT 22
- Calculus I
  - Math ACT 27



College Readiness

- Source: http://admissions.nku.edu/application/standards.html – Accessed: 5/31/2016

College Placement Testing

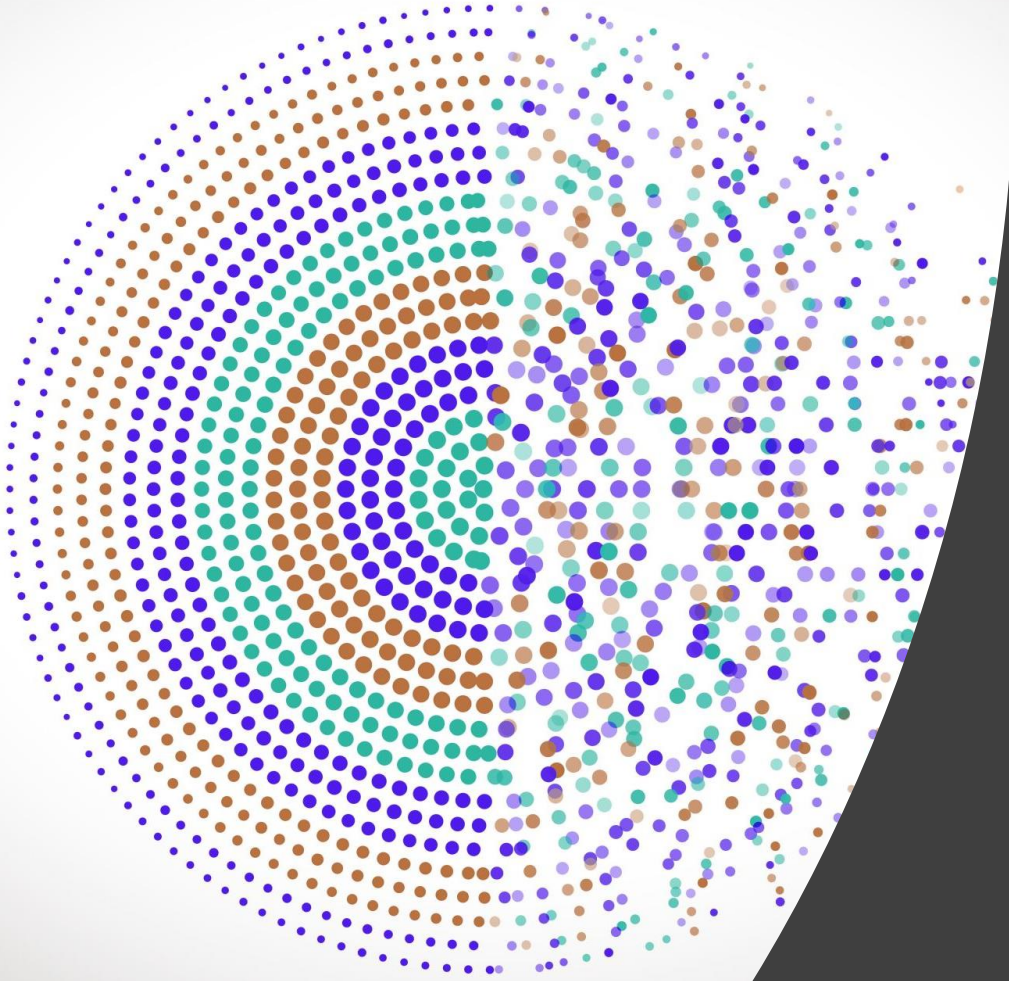
The Kentucky Council on Postsecondary Education (CPE) implemented readiness standards for all students entering Kentucky public colleges and universities in 2009. If your standardized test scores fall below the CPE college readiness standards you will be required to take a College Placement Test to determine proper placement in English, math, and/or reading prior to orientation.

CPE Placement Standards

ACT: English 18, Math 19, Reading 20

SAT: Writing 430, Math 460, Reading 470

If your scores fall below the above mentioned, you must take a College Placement Test(s) in each of the areas in which you are deficient. You will NOT be able to register for classes until your College Placement Test(s) have been taken. The College Placement Test is only available to admitted students. You may choose to take the opportunity to re-take the ACT test to raise your subject scores.



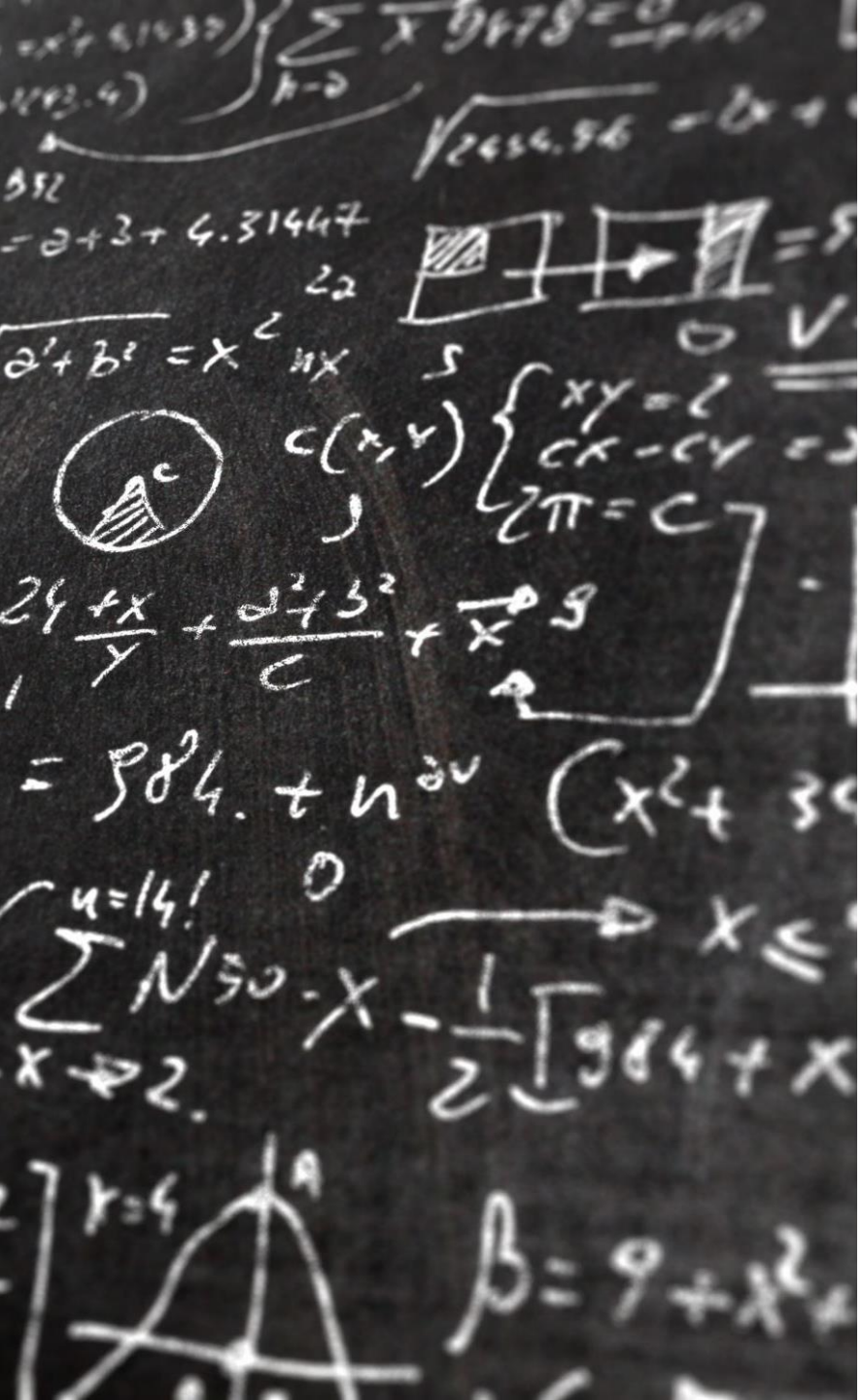
How to Reach Your Goal

ACT Prep

Percentage Correct and Approximate Scores

- princetonreview.com

ACT Score	Number Correct	Percentage
19	29 - 30	48% - 50%
22	34 - 35	57% - 58%
27	45 - 46	75% - 77%
28	47 - 48	78% - 80%
30	50 - 51	83% - 85%

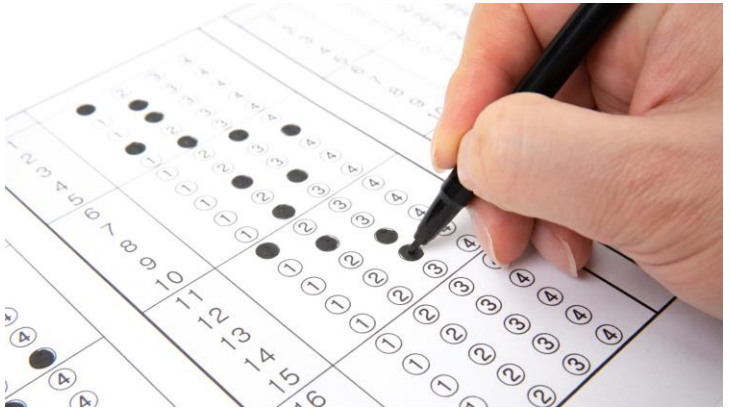


Distribution of Math Topics

- Pre-Algebra/elementary algebra – 24 questions
- Intermediate algebra/coordinate geometry – 18 questions
- Plane geometry – 14 questions
- Trigonometry – 4 questions

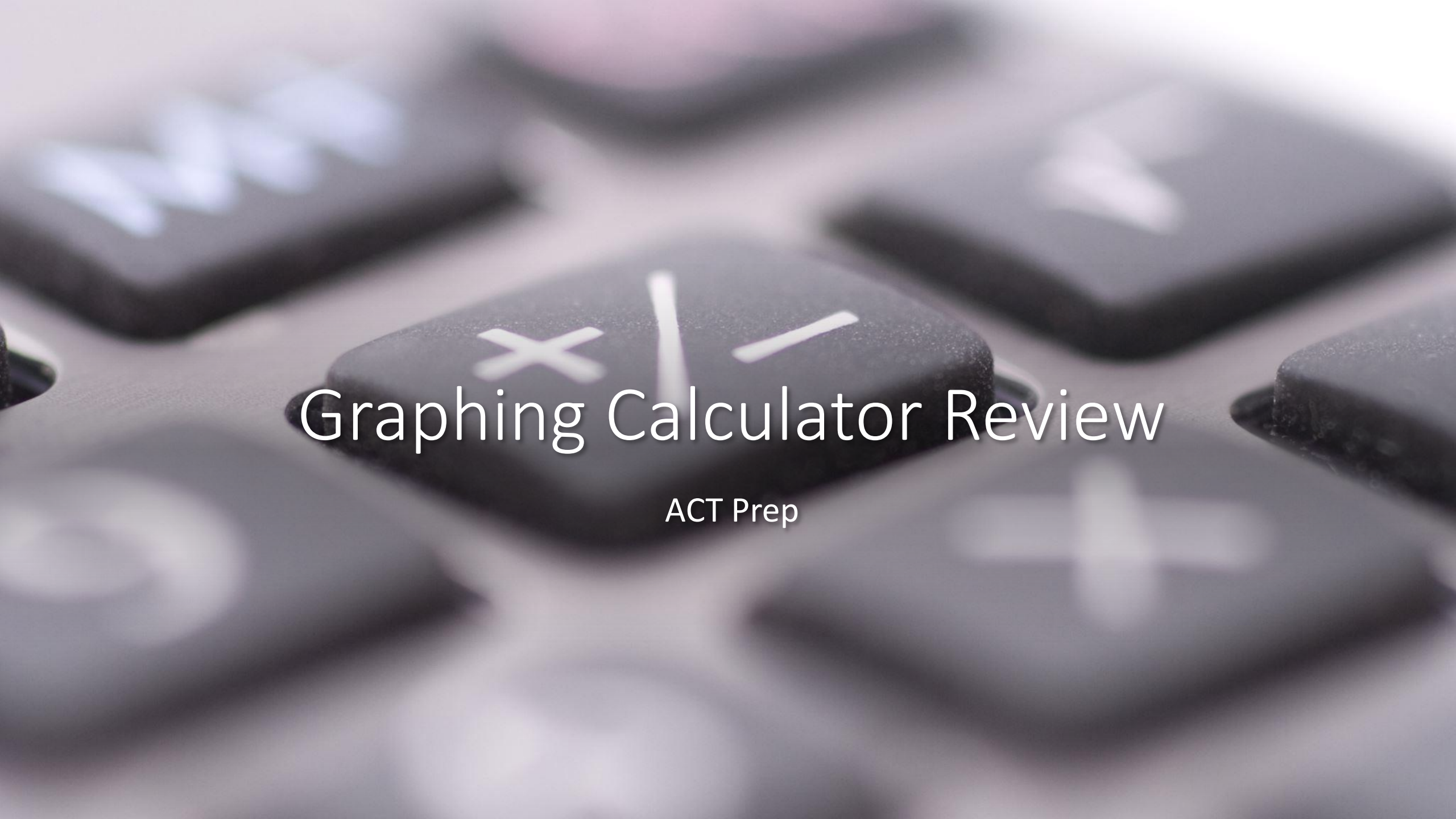
Test Structure

- The exam has 60 questions
- You have 60 minutes for the exam.
- Each question is multiple choice.
- You do not have to show work.
- All questions are worth the same.
- The easiest questions are usually first.



Useful Test Taking Hints

- Work the questions in order.
- Don’t spend more that one minute on a question unless you have already read through or answered each question.
- Guess-and-Check is a legitimate strategy.
- If you are going to guess:
  - Eliminate wrong answers before guessing.
  - Guess the same letter each time.
- Give an answer for every question.

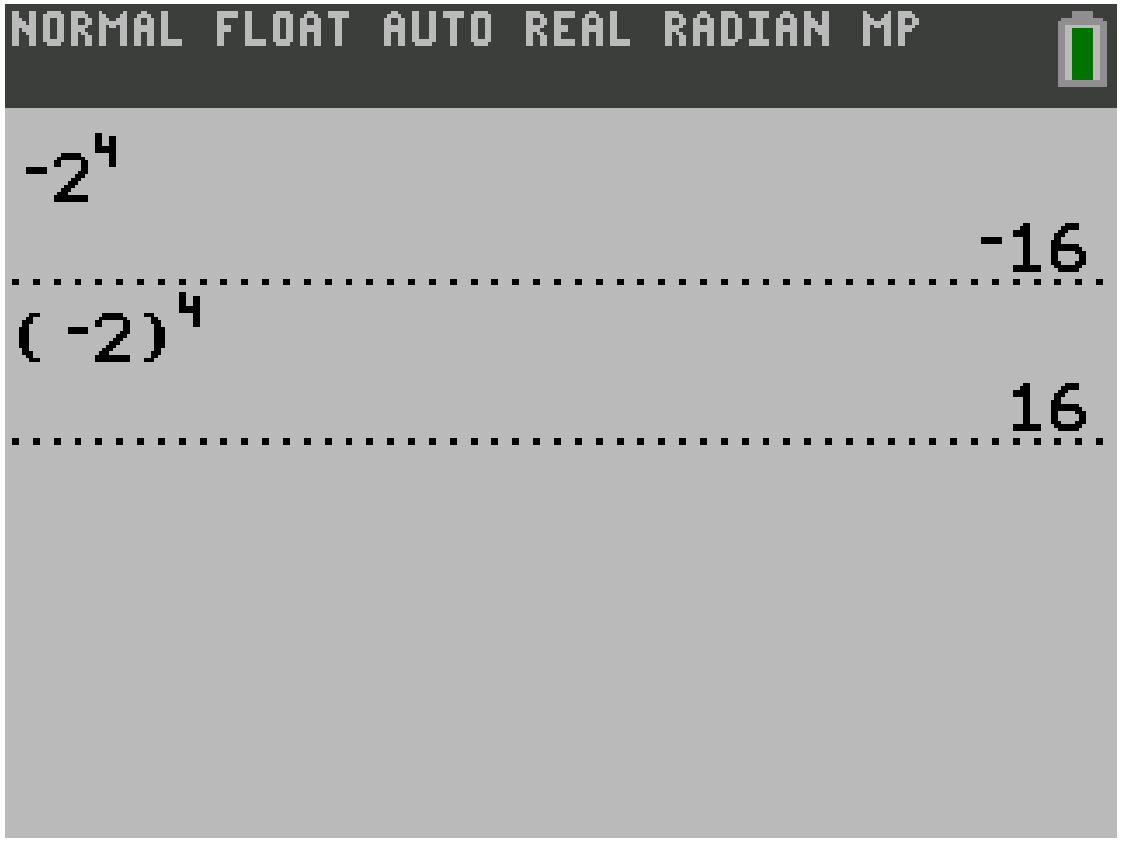


Graphing Calculator Review

ACT Prep

Common Pitfalls

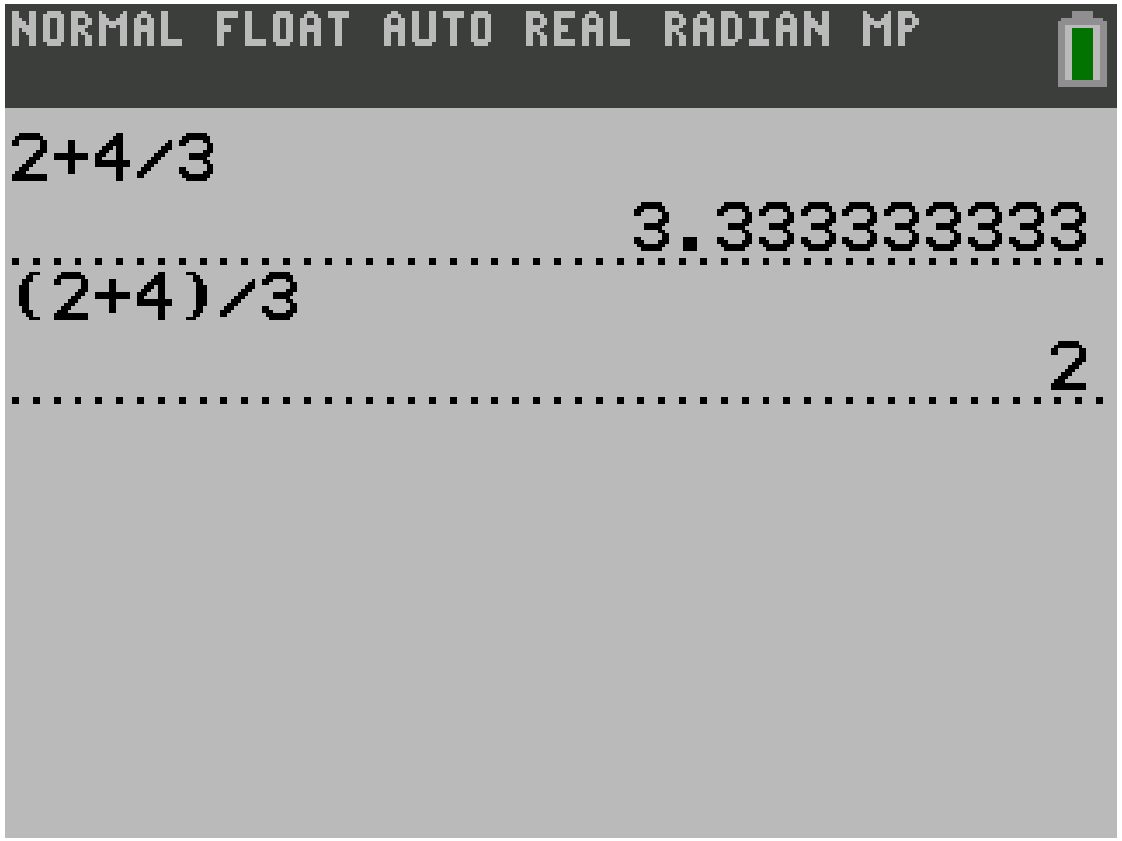
- Forgetting parentheses when raising a negative number to an exponent.
- Example: Raise -2 to the fourth power.



Common Pitfalls

- Forgetting parentheses when adding or subtracting in a numerator or a denominator.
- Example:

$$\frac{2+4}{3}$$



Guess and Check with Tables

- You can use tables to quickly check several answers to an equation.
- Example:

6. If $x^2 + 6x + 8 = 4 + 10x$, then x equals which of the following?

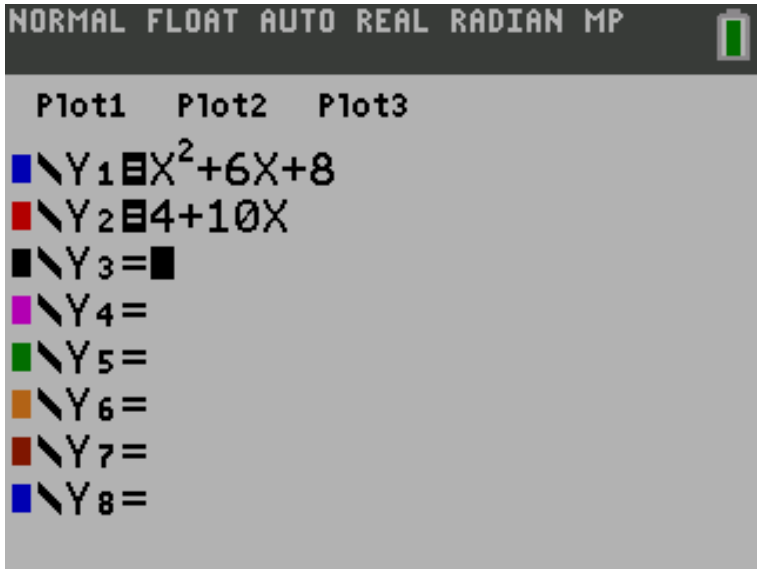
F. -2

G. -1

H. 0

J. 1

K. 2



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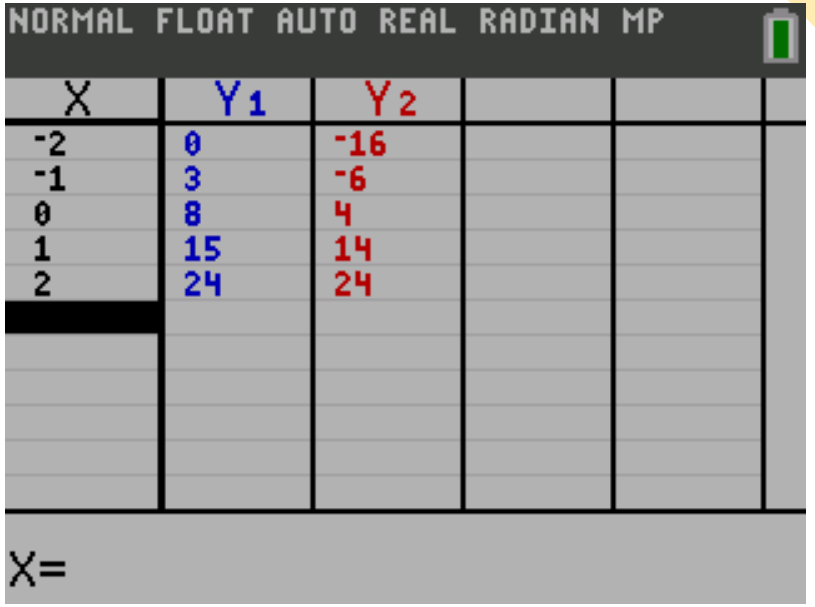

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K. 2

Solve Equations with Graphs

- You can solve an equation by graphing both sides of the equations and looking for x-coordinates of any points of intersection.
- Example:

How many different numbers are solutions for the equation $2x + 6 = (x + 5)(x + 3)$?

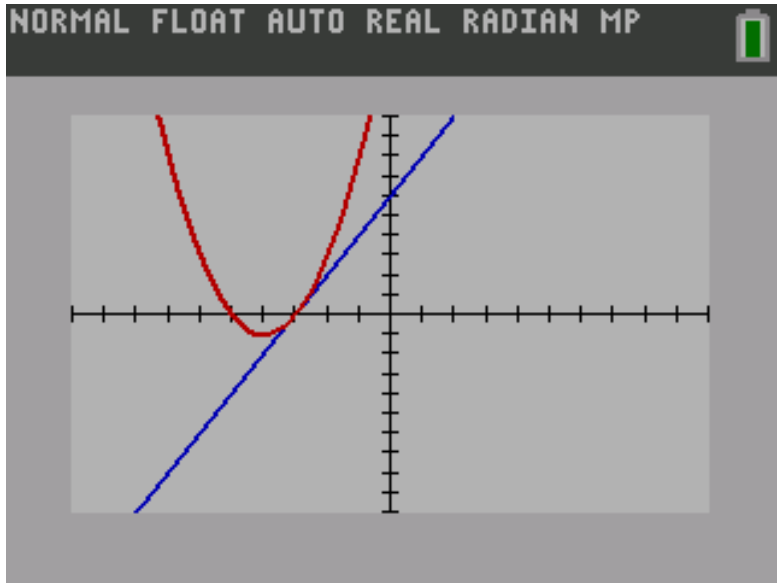
F. 0

G. 1

H. 2

J. 3

K. Infinitely many



Converting Decimals to Fractions

- The TI-83/84 calculators can easily convert decimals to fractions.
- Example:

29. $\dfrac{\frac{3}{2}+\frac{7}{4}}{\left(\frac{15}{8}-\frac{3}{4}\right)-\left(\frac{4+3}{-4+3}\right)} = ?$

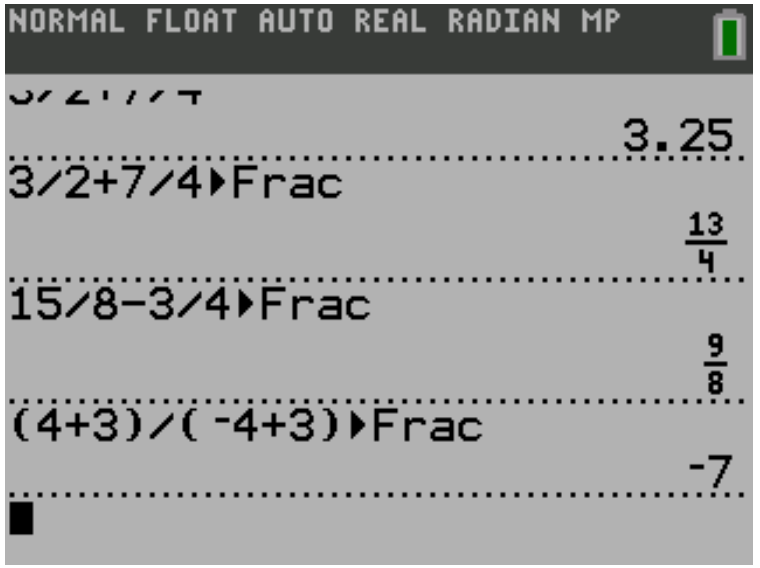
A. $\frac{3}{8}$

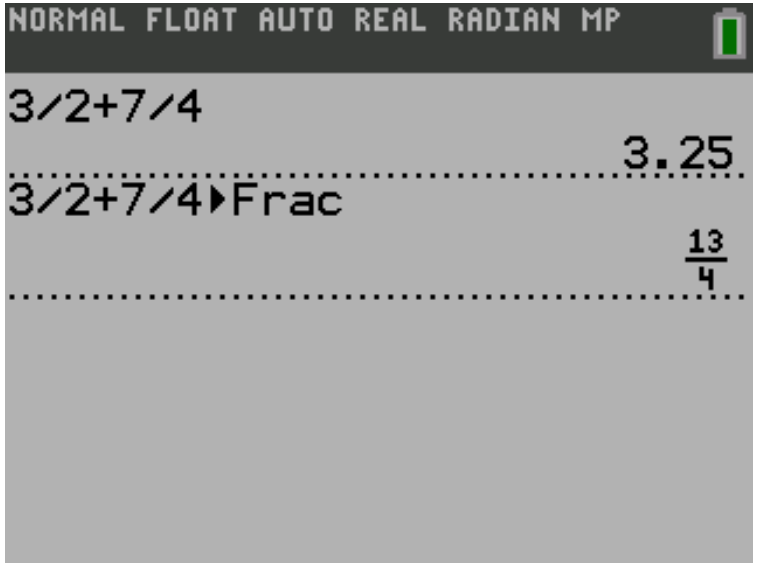
B. $\frac{2}{5}$

C. $\frac{9}{13}$

D. $\frac{5}{2}$

E. $\frac{8}{3}$





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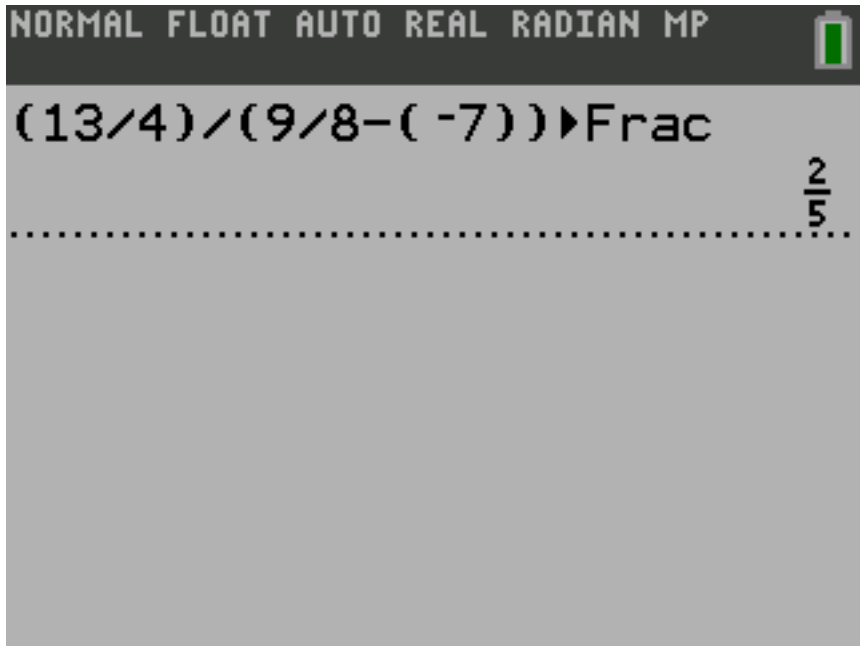

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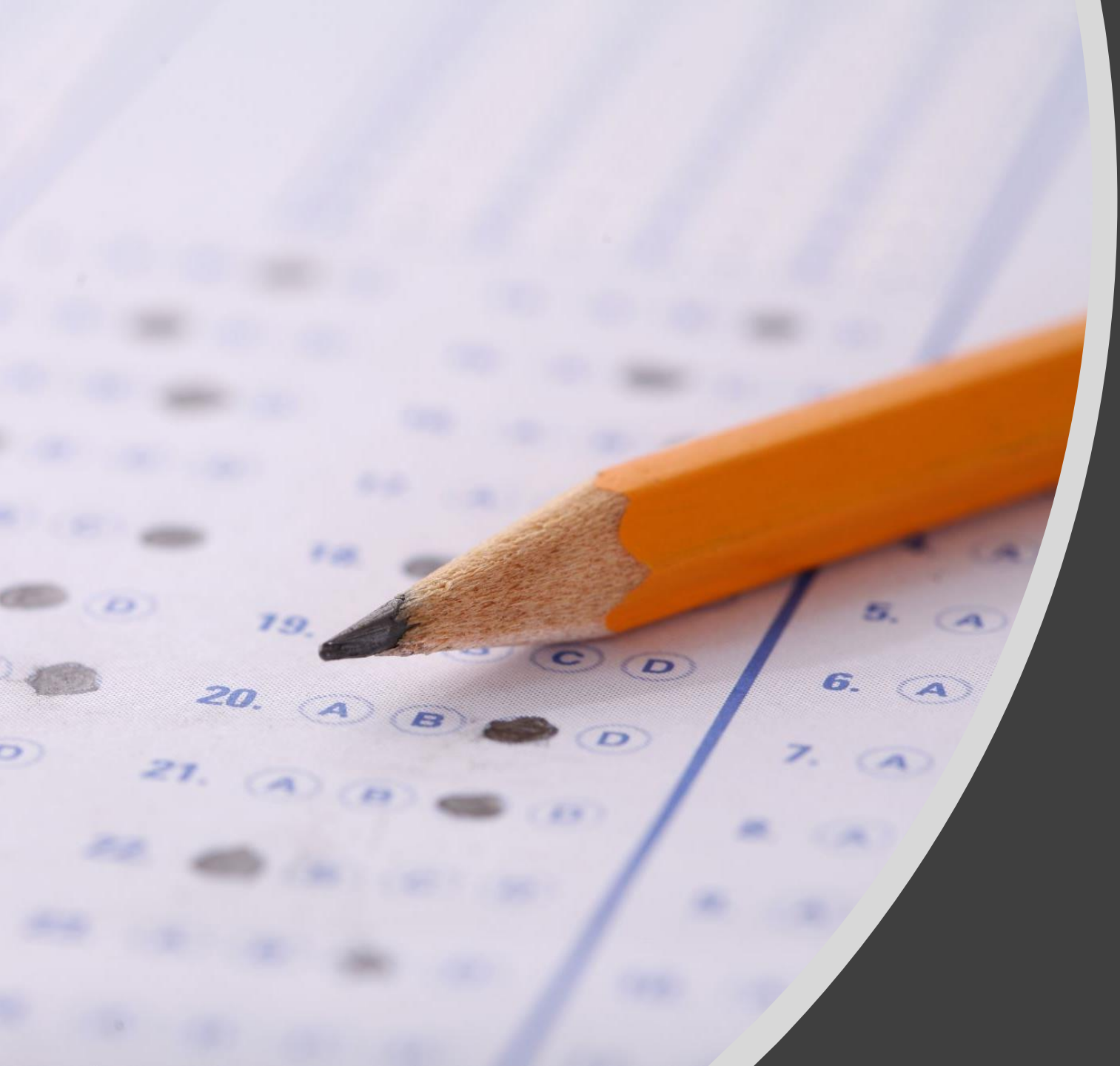


Math Facts to Remember

ACT Prep

Math Fundamentals

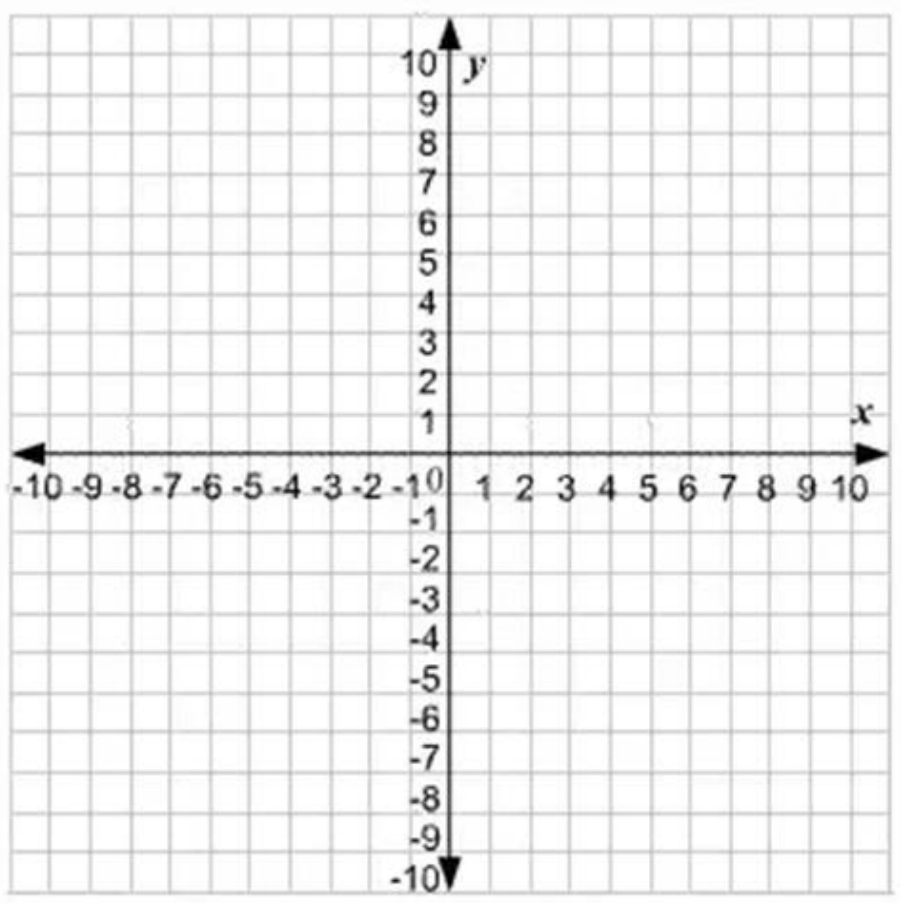
- Order of Operations (PEMDAS)
  - Parentheses
  - Exponents
  - Multiplications and Divisions, left-to-right
  - Additions and Subtractions, left-to-right
- Commutative Property
  - Order of numbers in addition or multiplication doesn't matter
- Associative Property
  - Order of performing two or more additions or two or more multiplications doesn't matter.
- Distributive Property
  - $a(b+c) = a \cdot b + a \cdot c$
  - $a(b-c) = a \cdot b \ - a \cdot c$
  - **The distributive law is the second most common source of algebra mistakes**

Math Fundamentals (Part 2)

- Prime Factorization
  - Prime number: divisible only by 1 and itself.
  - 1 is not prime
  - Examples: 2, 3, 5, 7, 11, 13, …
  - factor trees help break a number down into prime factors
- Evaluating Expressions
  - Substitute the value for the variable
  - Simplify the arithmetic
- Solving Equations
  - What you do to one side, you must do to the other.
  - **A**lways
Be
Simplifying
- Absolute Value
  - Just ignore the sign
- Convert Percents to Decimals
  - Shift decimal two places left
  - See table to memorize (p. 148-ish)

Math Fundamentals (Part 3)

- Graphing
  - x-axis gives locations left-to-right
  - y-axis gives locations down-to-up
  - Quadrants numbered I to IV counterclockwise starting in upper-right
  - Coordinates for points given as (x, y)
  - For functions, independent variable is on horizontal axis, dependent variable on vertical axis



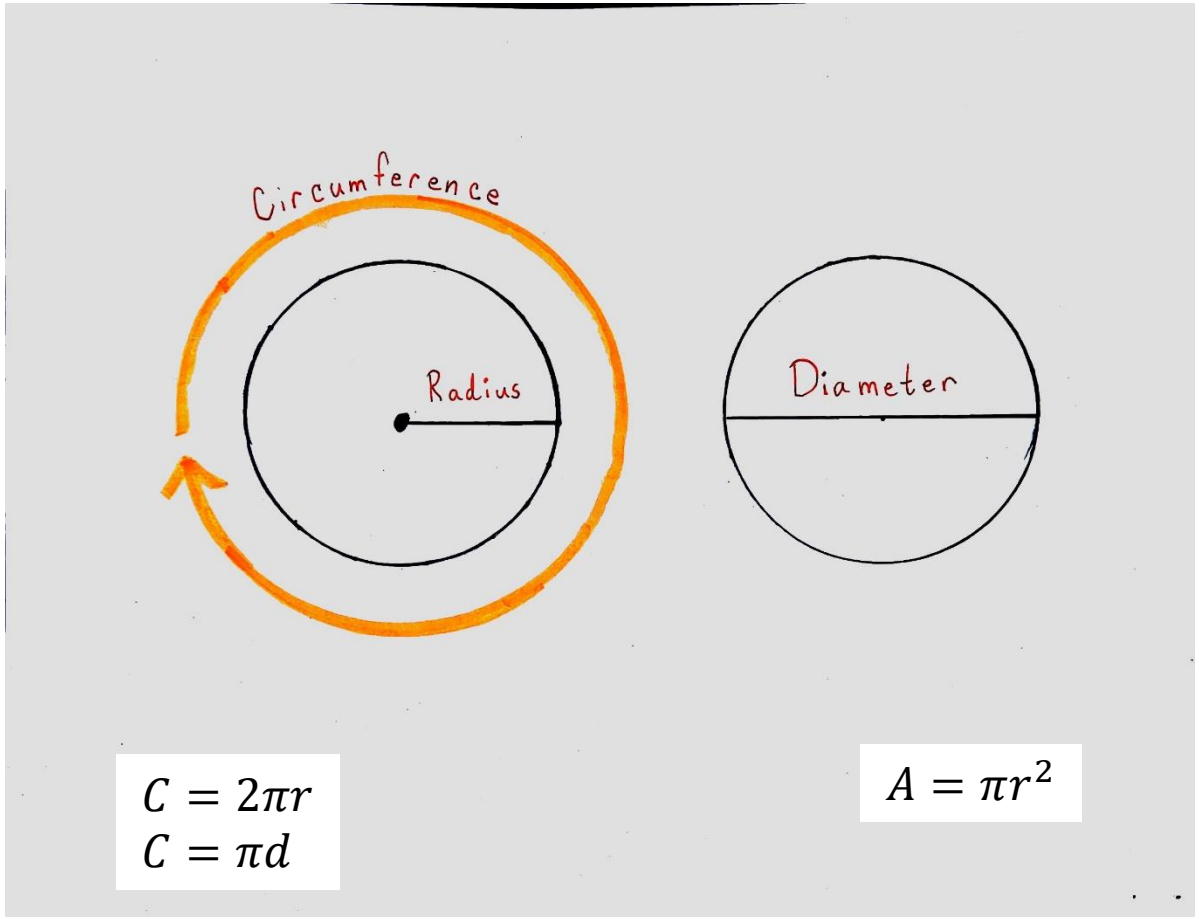
Math Fundamentals (Part 4)

- Lines
  - Slope: rise over run
  - y-intercept: point where line intersect y-axis.
  - $y = mx + b$
  - Parallel lines do not intersect
  - Parallel lines have same slope
  - Perpendicular lines intersect at right angles
  - Perpendicular lines have opposite reciprocal slopes

$$\frac{a}{b} \Rightarrow -\frac{b}{a}$$

- Angles
  - Complementary angles: Add to $90°$
  - Supplementary angles: Add to $180°$

Math Fundamentals (Part 5)



Math Fundamentals (Part 6)

- Fundamental Counting Principle: If Event A can occur m different ways, and Event B can occur n different ways, then the event "A then B" can occur $m \cdot n$ different ways.
- Factorial
  - The number of ways to order n objects is $n!$
  - $n! = n \cdot (n-1) \cdot (n-2) \cdot \ldots \cdot 1$
- Math to memorize
  - Times tables up to 10's
  - Squares through 10
  - Square roots through 100

Kaplan ACT Math Method

1. State what the question is asking
2. Examine the given information
3. Chose your approach
4. Confirm that you answered the right question

- See Chapter 7, first problem

Picking Numbers

- When confronted with an algebra problem, pick small numbers in place of the variable and eliminate incorrect answers

- See Chapter 7, second problem

Backsolving

- Check each possible answer one-by-one.
- See Chapter 7, third problem

Eliminating

- Cross out any obviously incorrect answers.
- If one answer remains, it is the correct answer.
- If more than one answer remains, keep working or take a guess between the remaining answers.

- See Chapter 7, fourth problem

Practice

- Chapter 7, “How Much Have You Learned?” Problems 1 – 3, 6, 7.