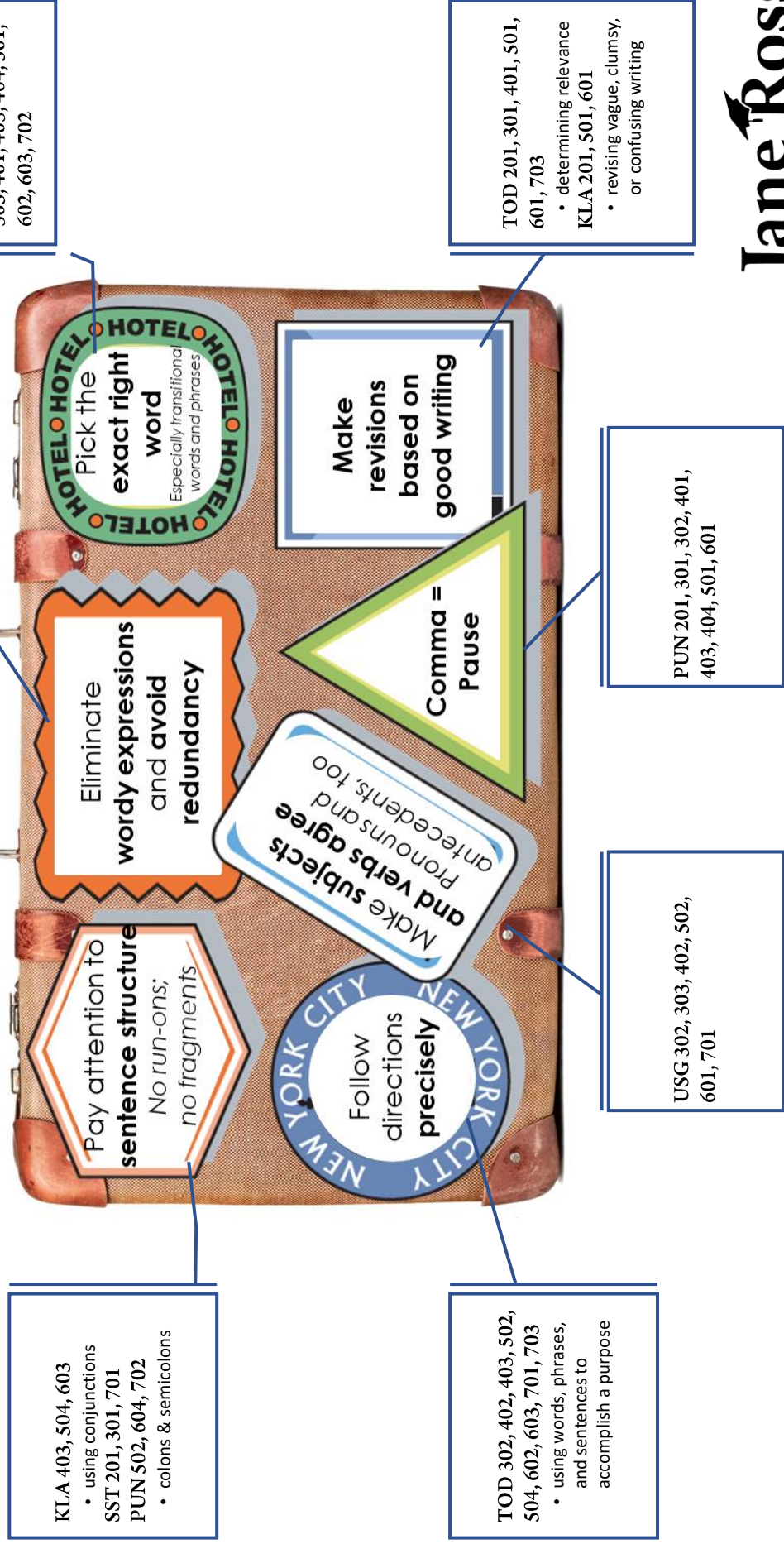


Standards Alignment

ACT College and Career Readiness
Standards and Jane Ross Tutoring's
English Handout

ACT ENGLISH "BAG OF TRICKS"



KLA 403, 504, 603
 • using conjunctions
 SST 201, 301, 701
 PUN 502, 604, 702
 • colons & semicolons

KLA 301, 401, 502, 602, 701

ORG 201, 401, 501, 502, 601, 603, 701, 702
 • using transitional words & phrases
 KLA 404, 505, 604, 702
 • determining the appropriate word
 USG 201, 202, 301, 304, 305, 401, 403, 404, 501, 602, 603, 702

TOD 302, 402, 502, 504, 602, 603, 701, 703
 • using words, phrases, and sentences to accomplish a purpose

TOD 201, 301, 401, 501, 601, 703
 • determining relevance
 KLA 201, 501, 601
 • revising vague, clumsy, or confusing writing

USG 302, 303, 402, 502, 601, 701

PUN 201, 301, 302, 401, 403, 404, 501, 601

TRANSITION WORDS & PHRASES

ACT's most common

Purpose	Sample Words & Phrases
<p>AND words</p> <p>Continuation of meaning; additional thought</p>	<p>again, also, and, another, as well as, besides, both-and, equally important, finally, for example, for instance, further, furthermore, in addition to, in fact, in the same way, likewise, moreover, not only-but also, similarly, too</p>
<p>SO words</p> <p>Cause-and-effect relationship; consequence or result</p>	<p>accordingly, as a result, because, consequently, due to, for this reason, hence, since, so, then, therefore, thus, with the result that</p>
<p>BUT words</p> <p>Contrast; contradiction</p>	<p>although, but, contrarily, conversely, despite, however, in contrast, in spite of, instead, meanwhile, nevertheless, nonetheless, notwithstanding, on one hand, on the contrary, on the other hand, rather, regardless, whereas, while this may be true, yet</p>

ACT College & Career Readiness Standards for English Organization, Unity, and Cohesion (ORG)

- ORG 201.** Determine the need for transition words or phrases to establish time relationships in simple narrative essays (e.g., *then*, *this time*)
- ORG 401.** Determine the need for transition words or phrases to establish straightforward logical relationships (e.g., *first*, *afterward*, *in response*)
- ORG 501.** Determine the need for transition words or phrases to establish subtle logical relationships within and between sentences (e.g., *therefore*, *however*, *in addition*)
- ORG 601.** Determine the need for transition words or phrases to establish subtle logical relationships within and between paragraphs
- ORG 701.** Determine the need for transition words or phrases, basing decisions on a thorough understanding of the paragraph and essay

Purpose	Sample Words & Phrases
Illustration	for example, for instance, namely, to illustrate, in other words, in particular, specifically, such as
Time	after, afterward, before, then, once, next, last, at last, at length, first (second, third, etc.), at first, formerly, rarely, usually, another, finally, soon, meanwhile, at the same time, for a minute (hour, day, etc.), during the morning (day, week, etc.), later, to begin with, afterwards, subsequently, previously, in the meantime, immediately, eventually, concurrently, simultaneously
Space	at the left, at the right, in the center, on the side, along the edge, on top, below, beneath, under, around, above, over, straight ahead, at the top, at the bottom, surrounding, opposite, at the rear, at the front, in front of, beside, behind, next to, nearby, in the distance, beyond, across, under, nearer, adjacent, in the background
Concession	although, at any rate, at least, still, though, even though, granted that, while it may be true, in spite of, of course
Similarity Of Comparison	similarly, likewise, in like fashion, in like manner, analogous to, by comparison, compared to, whereas
Emphasis	above all, indeed, truly, of course, certainly, surely, in fact, really, in truth, again
Details	specifically, especially, in particular, to explain, to list, to enumerate, in detail, namely, including
Examples	for example, for instance, to illustrate, thus, in other words, as an illustration, in particular
Summary	finally, in short, in conclusion, in brief, accordingly, indeed, to conclude, summing up
Suggestion	for this purpose, to this end, with this in mind, with this purpose in mind



ENGLISH



The students were bursting with energy and ignoring their lessons. They were, however, being quite disruptive.

- A. NO CHANGE
- B. nevertheless,
- C. in fact,
- D. regardless,



ENGLISH



Before the start of the game, Naismith developed thirteen rules to encourage competition and reward both physical ability and strategic planning. Instead, he created an indoor game that exercises the body and mind.

A. NO CHANGE

DISTRACTOR 1

B.

DISTRACTOR 2

C.

DISTRACTOR 3

D.

RIGHT ANSWER



ACT Skills to Build into the Directions of Writing Assignments

- **Include at least one compound sentence using:**
 - a comma and coordinating conjunction
 - a semicolon
- **Include at least one complex sentence with:**
 - the dependent clause at the beginning
 - the dependent clause at the end (no comma needed)
 - the dependent clause at the end (comma needed)
- **Include at least one sentence with a compound subject**
- **Include at least one sentence with a compound predicate**
- **Include at least one sentence that uses a colon to introduce an explanation or an example**
- **Write at least one non-essential phrase or clause punctuated with:**
 - commas
 - dashes
 - parentheses
- **Include at least one of each of the three types of transitional words and phrases:**
 - *and* words (continuation in meaning)
 - *so* words (cause-effect relationship)
 - *but* words (contradictory ideas)
- **Write one sentence with the subject and verb separated by a non-essential phrase or clause; make sure the subject and verb agree**
- **Write one sentence with a pronoun and its antecedent separated by a non-essential phrase or clause; make sure the pronoun and antecedent agree**
- **Properly use one or more of the commonly confused contractions:**
 - it's, who's, they're, you're
- **Refer to a list of commonly mixed-up words (e.g., affect/effect, who/whom, then/than, etc.). Include at least one instance of using the word correctly.**



MATH



Prepare for the distractors.

6. Tomas bought a new book on sale. It regularly cost \$17.95, but was on sale for 20% off. How much did the book cost Tomas?
- F. \$ 3.59
 - G. \$14.36
 - H. \$15.95
 - J. \$17.59
 - K. \$17.75



MATH



13. At his job, the first 40 hours of each week that Thomas works is *regular time*, and any additional time that he works is *overtime*. Thomas gets paid \$15 per hour during regular time. During overtime Thomas gets paid 1.5 times as much as he gets paid during regular time. Thomas works 46 hours in 1 week and gets \$117 in deductions taken out of his pay for this week. After the deductions are taken out, how much of Thomas's pay for this week remains?

A.

DISTRACTOR 1

B.

DISTRACTOR 2

C.

DISTRACTOR 3

D.

RIGHT ANSWER

E.

DISTRACTOR 4



READING



The McLean was a flop, and four years later it was off the market. What happened? Part of the problem appears to have been that McDonald's rushed the burger to market before many of the production kinks had been worked out. More important, though, was the psychological handicap the burger faced. People liked AU Lean in blind taste tests because they didn't know it was AU Lean; they were fooled into thinking it was regular ground beef. But nobody was fooled when it came to the McLean Deluxe. It was sold as the healthy choice—and who goes to McDonald's for health food?

Central Ideas, Themes, & Summaries

Identify or Infer	Summarize
Main Ideas	Supporting Details
IDT 201, 301, 401, 402, 501, 502, 601, 701	IDT 403, 503, 602, 702

Word Meaning & Word Choice

Use Words or Phrases to Shape the Meaning or Tone	Understand Language that is Technical, Connotative, or Figurative
WME 301, 401, 501, 502, 601, 701	WME 201, 302, 402, 503, 504, 602, 603, 702, 703



Close Reading

Locate Details	Draw Conclusions	Paraphrase Text
CLR 201, 301, 401, 501, 502, 601, 602, 701, 702	CLR 202, 302, 402, 403, 503, 504, 603, 604, 703, 704, 705	CLR 404, 505, 506, 605, 706

Relationships

Sequence of Events	Cause-Effect Relationships	Comparative Relationships
REL 201, 401, 501, 601, 701	REL 202, 302, 403, 504, 505, 604, 605, 704, 705	REL 301, 402, 502, 503, 602, 603, 702, 703

SUMMARY OF STANDARDS

ACT College and Career Readiness Standards for Reading

Text Structure

Determine How a Sentence or Paragraph Functions within a Passage
TST 201, 301, 302, 401, 402, 403, 404, 501, 502, 503, 504, 505, 601, 602, 603, 701, 702, 703

Argument

Identify a Central Claim	Analyze How Sentences Support the Claim
ARG 402, 502, 503, 602, 702, 703	ARG 201, 301, 401, 501, 601, 701

Purpose & Point of View

Determine the Author's Intent	Determine Point of View
PPV 201, 301, 401, 501, 502, 601, 701	PPV 402, 503, 602, 702

Multiple Texts

Make Comparisons
SYN 201, 301
Draw Conclusions
SYN 401, 501, 601, 701

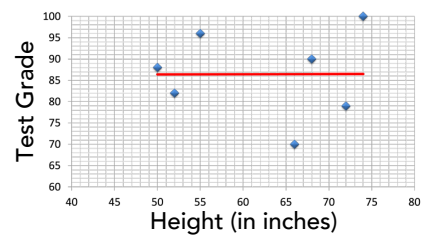
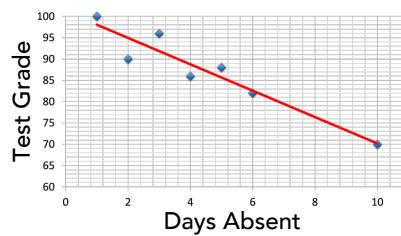
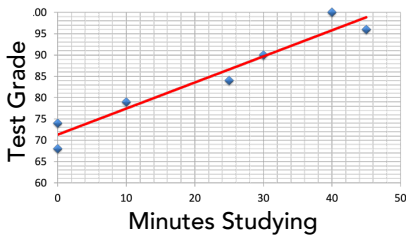


INTERPRETING DATA

Recognizing Patterns

Based on the data in the table above, what was the temperature at 3 hours? _____ at 8 hours? _____ at 0 hours? _____

Recognizing Relationships



1. _____

2. _____

3. _____

Based on the data in the table above,
 what is the relationship between time and temperature? _____
 between time and volume? _____ between temperature and volume? _____



SCIENCE

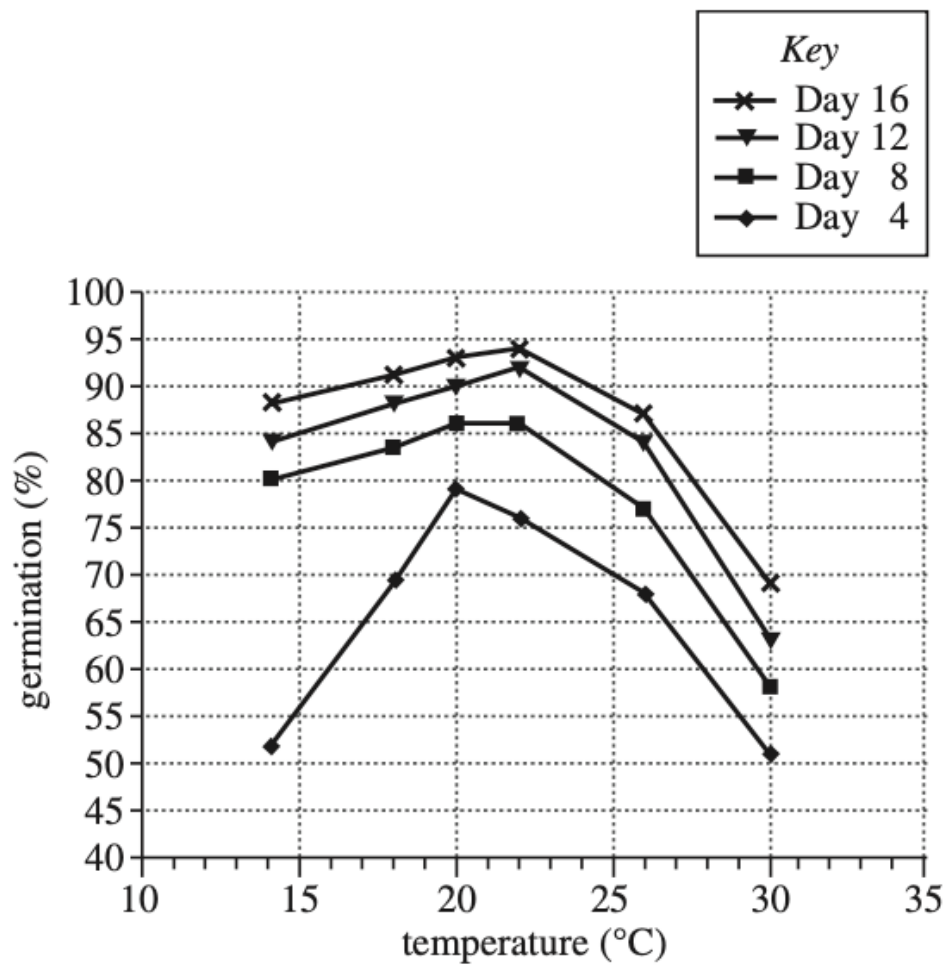


Figure 1

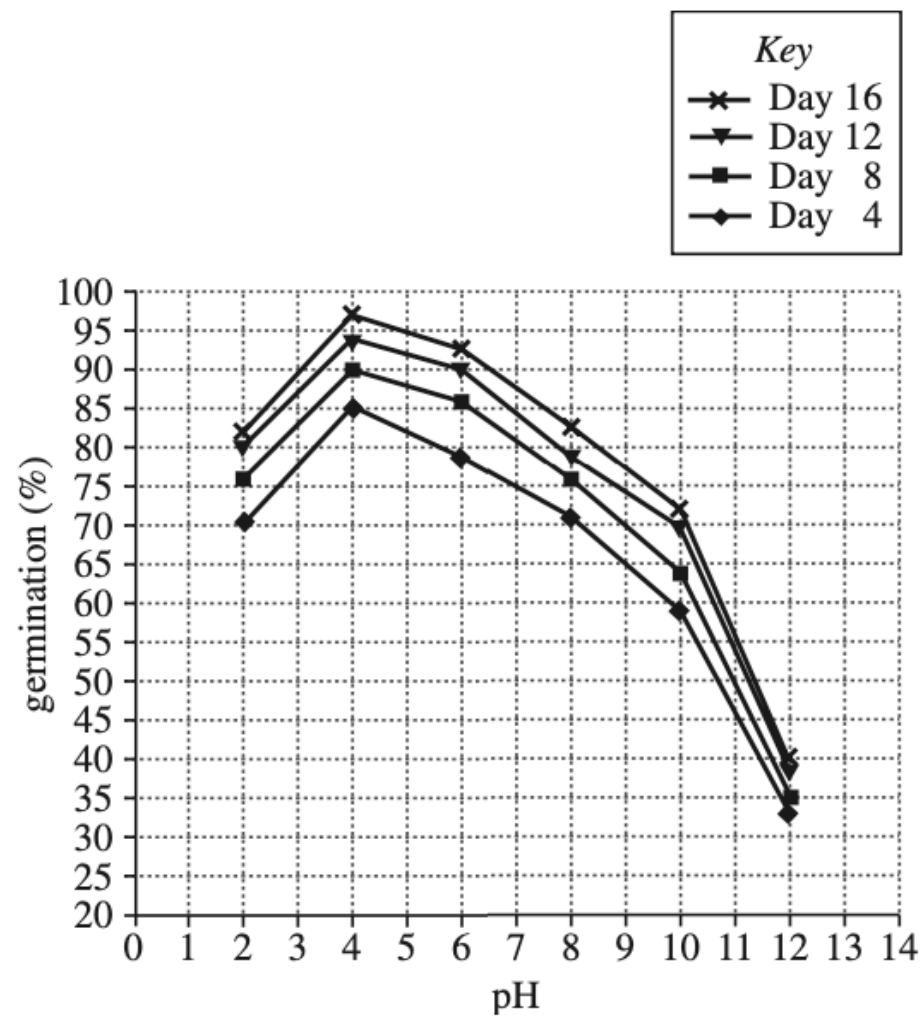


Figure 2



COLLEGE AND CAREER READINESS STANDARDS FOR MATH

ORGANIZED BY TOPIC

NUMBER AND QUANTITY (N)

Fractions

- N 202. Recognize equivalent fractions and fractions in lowest terms
- N 303. Locate rational numbers on the number line
- N 501. Order fractions

Matrices

- N 406. Add two matrices that have whole number entries
- N 505. Add and subtract matrices that have integer entries
- N 607. Use relations involving addition, subtraction, and scalar multiplication of vectors and of matrices
- N 705. Multiply matrices
- N 706. Apply properties of matrices and properties of matrices as a number system

Number Properties & Number Sense

- N 401. Exhibit knowledge of elementary number concepts such as rounding, the ordering of decimals, pattern identification, primes, and greatest common factor
- N 601. Apply number properties involving prime factorization
- N 602. Apply number properties involving even/odd numbers and factors/multiples
- N 603. Apply number properties involving positive/negative numbers
- N 701. Analyze and draw conclusions based on number concepts
- N 702. Apply properties of rational numbers and the rational number system
- N 703. Apply properties of real numbers and the real number system, including properties of irrational numbers

Imaginary and Complex Numbers

- N 504. Exhibit some knowledge of the complex numbers
- N 606. Multiply two complex numbers
- N 704. Apply properties of complex numbers and the complex number system

Miscellaneous Number and Quantity

- N 201. Perform one-operation computation with whole numbers and decimals
- N 203. Locate positive rational numbers (expressed as whole numbers, fractions, decimals, and mixed numbers) on the number line
- N 301. Recognize one-digit factors of a number
- N 302. Identify a digit's place value
- N 402. Write positive powers of 10 by using exponents
- N 403. Comprehend the concept of length on the number line, and find the distance between two points
- N 404. Understand absolute value in terms of distance
- N 405. Find the distance in the coordinate plane between two points with the same x-coordinate or y-coordinate
- N 502. Find and use the least common multiple
- N 503. Work with numerical factors
- N 604. Apply the facts that π is irrational and that the square root of an integer is rational only if that integer is a perfect square
- N 605. Apply properties of rational exponents

ALGEBRA (A)

Working with Expressions

- A 201. Exhibit knowledge of basic expressions (e.g., identify an expression for a total as $b + g$)
- A 301. Substitute whole numbers for unknown quantities to evaluate expressions
- A 303. Combine like terms (e.g., $2x + 5x$)
- A 401. Evaluate algebraic expressions by substituting integers for unknown quantities
- A 402. Add and subtract simple algebraic expressions
- A 404. Multiply two binomials
- A 505. Add, subtract, and multiply polynomials
- A 513. Determine when an expression is undefined

Simple Equations and Inequalities

- A 202. Solve equations in the form $x + a = b$, where a and b are whole numbers or decimals
- A 302. Solve one-step equations to get integer or decimal answers
- A 403. Solve routine first-degree equations
- A 405. Match simple inequalities with their graphs on the number line (e.g., $x \geq -3/5$)
- A 502. Solve real-world problems by using first-degree equations
- A 503. Solve first-degree inequalities when the method does not involve reversing the inequality sign

A 504. Match compound inequalities with their graphs on the number line (e.g., $-10.5 < x \leq 20.3$)

A 601. Manipulate expressions and equations

Quadratic Equations

A 506. Identify solutions to simple quadratic equations

A 507. Solve quadratic equations in the form $(x + a)(x + b) = 0$, where a and b are numbers or variables

A 508. Factor simple quadratics (e.g., the difference of squares and perfect square trinomials)

A 605. Solve quadratic equations

A 702. Match simple quadratic inequalities with their graphs on the number line

Linear Equations and Inequalities

A 406. Exhibit knowledge of slope

A 514. Determine the slope of a line from an equation

A 602. Solve linear inequalities when the method involves reversing the inequality sign

A 603. Match linear inequalities with their graphs on the number line

More Advanced Equations (Absolute Value; Systems)

A 604. Solve systems of two linear equations

A 606. Solve absolute value equations

A 701. Solve simple absolute value inequalities

Miscellaneous Algebra

A 501. Recognize that when numerical quantities are reported in real-world contexts, the numbers are often rounded

A 509. Work with squares and square roots of numbers

A 510. Work with cubes and cube roots of numbers

A 511. Work with scientific notation

A 512. Work problems involving positive integer exponents

A 703. Apply the remainder theorem for polynomials, that $P(a)$ is the remainder when $P(x)$ is divided by $(x - a)$

FUNCTIONS (F)

Patterns and Sequences

- F 201. Extend a given pattern by a few terms for patterns that have a constant increase or decrease between terms
- F 301. Extend a given pattern by a few terms for patterns that have a constant factor between terms
- F 502. Find the next term in a sequence described recursively
- F 603. Find a recursive expression for the general term in a sequence described recursively
- F 703. Exhibit knowledge of geometric sequences

Understanding, Evaluating, and Combining Functions Written in Function Notation

- F 401. Evaluate linear and quadratic functions, expressed in function notation, at integer values
- F 501. Evaluate polynomial functions, expressed in function notation, at integer values
- F 505. Understand the concept of a function as having a well-defined output value at each valid input value
- F 507. Interpret statements that use function notation in terms of their context
- F 511. Use function notation for simple functions of two variables
- F 602. Build functions for relations that are inversely proportional
- F 604. Evaluate composite functions at integer values
- F 702. Build functions for relations that are exponential
- F 708. Write an expression for the composite of two simple functions

Domain, Range, and Asymptotes

- F 506. Understand the concept of domain and range in terms of valid input and output, and in terms of function graphs
- F 508. Find the domain of polynomial functions and rational functions
- F 509. Find the range of polynomial functions
- F 510. Find where a rational function's graph has a vertical asymptote

Miscellaneous Functions

- F 503. Build functions and use quantitative information to identify graphs for relations that are proportional or linear
- F 504. Attend to the difference between a function modeling a situation and the reality of the situation
- F 601. Relate a graph to a situation described qualitatively in terms of faster change or slower change

- F 701. Compare actual values and the values of a modeling function to judge model fit and compare models
- F 707. Exhibit knowledge of logarithms

ALGEBRA/FUNCTIONS COMBINED (AF)

Percent and Percent Change

- AF 301. Solve routine one-step arithmetic problems using positive rational numbers, such as single-step percent
- AF 401. Solve routine two-step or three-step arithmetic problems involving concepts such as rate and proportion, tax added, percentage off, and estimating by using a given average value in place of actual values
- AF 601. Solve word problems containing several rates, proportions, or percentages
- AF 701. Solve complex arithmetic problems involving percent of increase or decrease or requiring integration of several concepts (e.g., using several ratios, comparing percentages, or comparing averages)

Unit Conversion

- AF 501. Solve multistep arithmetic problems that involve planning or converting common derived units of measure (e.g., feet per second to miles per hour)

Miscellaneous Algebra/Functions Combined

- AF 201. Solve problems in one or two steps using whole numbers and using decimals in the context of money
- AF 302. Solve some routine two-step problems
- AF 303. Relate a graph to a situation described qualitatively in terms of familiar properties such as before and after, increasing and decreasing, higher and lower
- AF 304. Apply a definition of an operation for whole numbers (e.g., $a \square b = 3a - b$)
- AF 402. Perform straightforward word-to-symbol translations
- AF 403. Relate a graph to a situation described in terms of a starting value and an additional amount per unit (e.g., unit cost, weekly growth)
- AF 502. Build functions and write expressions, equations, or inequalities with a single variable for common pre-algebra settings (e.g., rate and distance problems and problems that can be solved by using proportions)
- AF 602. Build functions and write expressions, equations, and inequalities for common algebra settings (e.g., distance to a point on a curve and profit for variable cost and demand)
- AF 702. Build functions and write expressions, equations, and inequalities when the process requires planning and/or strategic manipulation
- AF 703. Analyze and draw conclusions based on properties of algebra and/or functions

GEOMETRY (G)

Angles

- G 301. Exhibit some knowledge of the angles associated with parallel lines
- G 401. Use properties of parallel lines to find the measure of an angle
- G 402. Exhibit knowledge of basic angle properties and special sums of angle measures (e.g., 90° , 180° , and 360°)
- G 501. Use several angle properties to find an unknown angle measure

Lines and Line Segments

- G 201. Estimate the length of a line segment based on other lengths in a geometric figure
- G 202. Calculate the length of a line segment based on the lengths of other line segments that go in the same direction (e.g., overlapping line segments and parallel sides of polygons with only right angles)
- G 510. Determine the slope of a line from points or a graph
- G 511. Find the midpoint of a line segment
- G 606. Use properties of parallel and perpendicular lines to determine an equation of a line or coordinates of a point

Triangles

- G 404. Find the length of the hypotenuse of a right triangle when only very simple computation is involved (e.g., 3-4-5 and 6-8-10 triangles)
- G 503. Use symmetry of isosceles triangles to find unknown side lengths or angle measures
- G 508. Given the length of two sides of a right triangle, find the third when the lengths are Pythagorean triples
- G 602. Use the Pythagorean theorem
- G 603. Apply properties of 30° - 60° - 90° , 45° - 45° - 90° , similar, and congruent triangles

Circles

- G 609. Recognize special characteristics of parabolas and circles (e.g., the vertex of a parabola and the center or radius of a circle)
- G 701. Use relationships among angles, arcs, and distances in a circle

Area and Perimeter of Basic Shapes

- G 302. Compute the perimeter of polygons when all side lengths are given
- G 303. Compute the area of rectangles when whole number dimensions are given
- G 403. Compute the area and perimeter of triangles and rectangles in simple problems
- G 505. Compute the perimeter of simple composite geometric figures with unknown side lengths

- G 506. Compute the area of triangles and rectangles when one or more additional simple steps are required
- G 507. Compute the area and circumference of circles after identifying necessary information
- G 601. Use relationships involving area, perimeter, and volume of geometric figures to compute another measure (e.g., surface area for a cube of a given volume and simple geometric probability)
- G 702. Compute the area of composite geometric figures when planning and/or visualization is required

Coordinate Geometry

- G 304. Locate points in the first quadrant
- G 406. Locate points in the coordinate plane
- G 407. Translate points up, down, left, and right in the coordinate plane
- G 512. Find the coordinates of a point rotated 180° around a given center point
- AF 503. Match linear equations with their graphs in the coordinate plane
- AF 603. Interpret and use information from graphs in the coordinate plane
- AF 604. Given an equation or function, find an equation or function whose graph is a translation by a specified amount up or down
- G 605. Use the distance formula
- G 607. Find the coordinates of a point reflected across a vertical or horizontal line or across $y = x$
- G 608. Find the coordinates of a point rotated 90° about the origin
- AF 704. Analyze and draw conclusions based on information from graphs in the coordinate plane
- AF 705. Identify characteristics of graphs based on a set of conditions or on a general equation such as $y = ax^2 + c$
- AF 706. Given an equation or function, find an equation or function whose graph is a translation by specified amounts in the horizontal and vertical directions

Trigonometry

- G 509. Express the sine, cosine, and tangent of an angle in a right triangle as a ratio of given side lengths
- G 604. Apply basic trigonometric ratios to solve right-triangle problems
- F 704. Exhibit knowledge of unit circle trigonometry
- F 705. Match graphs of basic trigonometric functions with their equations
- F 706. Use trigonometric concepts and basic identities to solve problems

Miscellaneous Geometry

- G 203. Perform common conversions of money and of length, weight, mass, and time within a measurement system (e.g., dollars to dimes, inches to feet, and hours to minutes)
- G 405. Use geometric formulas when all necessary information is given

- G 502. Count the number of lines of symmetry of a geometric figure
- G 504. Recognize that real-world measurements are typically imprecise and that an appropriate level of precision is related to the measuring device and procedure
- G 703. Use scale factors to determine the magnitude of a size change
- G 704. Analyze and draw conclusions based on a set of conditions
- G 705. Solve multistep geometry problems that involve integrating concepts, planning, and/or visualization

STATISTICS AND PROBABILITY (S)

Mean, Median, Mode

- S 201. Calculate the average of a list of positive whole numbers
- S 301. Calculate the average of a list of numbers
- S 302. Calculate the average given the number of data values and the sum of the data values
- S 401. Calculate the missing data value given the average and all data values but one
- S 501. Calculate the average given the frequency counts of all the data values
- S 601. Calculate or use a weighted average
- S 701. Distinguish between mean, median, and mode for a list of numbers

Probability

- S 305. Use the relationship between the probability of an event and the probability of its complement
- S 403. Determine the probability of a simple event
- S 503. Compute straightforward probabilities for common situations
- S 604. Compute a probability when the event and/or sample space are not given or obvious
- S 605. Recognize the concepts of conditional and joint probability expressed in real-world contexts
- S 704. Exhibit knowledge of conditional and joint probability

Simple Counting Techniques (Fundamental Counting Principle)

- S 405. Exhibit knowledge of simple counting techniques
- S 603. Apply counting techniques

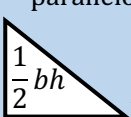
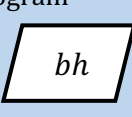
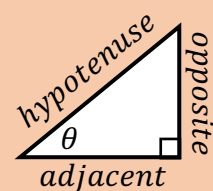
Tables, Charts, and Graphs

- S 202. Extract one relevant number from a basic table or chart, and use it in a single computation
- S 303. Read basic tables and charts
- S 304. Extract relevant data from a basic table or chart and use the data in a computation
- S 402. Translate from one representation of data to another (e.g., a bar graph to a circle graph)

- S 502. Manipulate data from tables and charts
- S 602. Interpret and use information from tables and charts, including two-way frequency tables
- S 702. Analyze and draw conclusions based on information from tables and charts, including two-way frequency tables

Miscellaneous Statistics and Probability

- S 404. Describe events as combinations of other events (e.g., using *and*, *or*, and *not*)
- S 504. Use Venn diagrams in counting
- S 505. Recognize that when data summaries are reported in the real world, results are often rounded and must be interpreted as having appropriate precision
- S 506. Recognize that when a statistical model is used, model values typically differ from actual values
- S 606. Recognize the concept of independence expressed in real-world contexts
- S 703. Understand the role of randomization in surveys, experiments, and observational studies
- S 705. Recognize that part of the power of statistical modeling comes from looking at regularity in the differences between actual values and model values

ACT Score Range	Algebra	Geometry	Trigonometry	Statistics & Probability
13-19	<p>Adding terms¹: $x + x = 2x$</p> <p>Multiplying terms²: $x \cdot x = x^2$</p> <p>Arithmetic sequence³: 2, 4, 6, 8, 10, ___</p> <p>Geometric sequence⁴: 2, 4, 8, 16, 32, ___</p> <p>Simple percent formula⁵: <i>whole</i> \times <i>percent</i> = <i>part</i></p>	<p>Congruent angles within two parallel lines cut by transversal⁶</p> <p>Area of basic shapes: square⁷, rectangle⁸</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 2px 10px;">s^2</div> <div style="border: 1px solid black; padding: 2px 10px;">lw</div> </div>		<p>Arithmetic average (mean)⁹: $\frac{\text{sum of terms}}{\text{number of terms}}$</p>
20-27	<p>FOIL method¹⁰: $(x + y)(x + y) = x^2 + xy + xy + y^2 = x^2 + 2xy + y^2$</p> <p>Scientific notation¹¹: $a \times 10^n$ <i>a</i> must be between 0-10</p> <p>Linear equation¹²: $y = mx + b$ <i>m</i> is slope; <i>b</i> is <i>y</i>-intercept</p> <p>Solve quadratic equations by factoring¹³: $x^2 + 7x + 12 = 0$ $(x + 3)(x + 4) = 0$ $x = -3, -4$</p> <p>Rules of monomials¹⁴: $(x^2)(x^3) = x^5$ $(x^2)^3 = x^6$ and $\frac{x^3}{x^2} = x$ $\frac{x^2}{x^3} = x^{-1} = \frac{1}{x}$</p>	<p>triangle¹⁵, parallelogram¹⁶</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div> <p>circle πr^2</p> <p>Pythagorean Theorem¹⁷: $a^2 + b^2 = c^2$</p> <p>Pythagorean triples¹⁸: 3, 4, 5 // 5, 12, 13 7, 24, 25</p> <p>Slope of a line¹⁹: $m = \frac{y_2 - y_1}{x_2 - x_1}$</p> <p>Midpoint of a line²⁰: $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$</p>	 <p>$\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$</p> <p>$\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$</p> <p>$\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$</p> <p>Many students use the memory trick "SOH-CAH-TOA"²¹</p>	<p>Probability of a simple event²²: $\frac{\# \text{ of successes}}{\# \text{ of possibilities}}$</p> <p>Basic Counting Principle²³: If an event can happen in <i>N</i> ways, and another, independent event can happen in <i>M</i> ways, then both events together can happen in $N \times M$ ways.</p>
28-36	<p>Percent change formula²⁴: $\frac{\text{original amount}}{\text{amount}} \times \frac{\text{percent change}}{\text{change}} = \frac{\text{amount}}{\text{changed}}$</p> <p>Rational exponents²⁵: $x^{1/2} = \sqrt{x}$ and $x^{2/3} = \sqrt[3]{x^2}$</p> <p>Logarithms²⁶: $\log_b y = x$ when $b^x = y$</p> <p>Solving absolute equations²⁷: $x + 3 = 8$ $x + 3 = 8$ or $x + 3 = -8$ $x = 5$ or $x = -11$</p>	<p>Volume of a cube/rectangular solid²⁸: $V = l \cdot w \cdot h$</p> <p>Special triangles²⁹: 45°-45°-90°, 30°-60°-90°</p> <p>Distance between 2 pts³⁰: $D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p> <p>Equation of a circle³¹: $(x - h)^2 + (y - k)^2 = r^2$ (<i>h</i>, <i>k</i>) is center; <i>r</i> is radius</p>	<p>Law of Sines³²: $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$</p> <p>Law of Cosines³³: $a^2 = b^2 + c^2 - 2bc \cdot \cos A$ $b^2 = a^2 + c^2 - 2ac \cdot \cos B$ $c^2 = a^2 + b^2 - 2ab \cdot \cos C$</p>	<p>Mean, median, mode³⁴ Given the set {2, 2, 5, 6, 8, 13}: Mean: 6 Median: 5.5 Mode: 2</p> <p>Weighted average³⁵ Find a missing value given the mean³⁶</p> <p>Compound probability³⁷</p>