



ARIZONA EDUCATOR PROFICIENCY ASSESSMENTS®



STUDY GUIDE

96 Basic Skills: Reading Comprehension

97 Basic Skills: Writing

98 Basic Skills: Mathematics

This AEPA test was replaced by a NES test.

Examinees may continue to find this study guide useful as they prepare for the NES, as the previous AEPA test may have covered objectives and content similar to the NES test.

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STUDY GUIDE ORDER FORM



PART 1: GENERAL INFORMATION ABOUT THE AEPA® AND TEST PREPARATION

Part 1 of this study guide is contained in a separate PDF file. Click the link below to view or print this section:

[General Information About the AEPA and Test Preparation](#)



PART 2: FIELD-SPECIFIC INFORMATION

Basic Skills

INTRODUCTION

This section includes a list of the test objectives, practice questions, and an answer key for the selected-response questions.

Test objectives. As noted earlier, the test objectives are broad, conceptual statements that reflect the knowledge, skills, and understanding an entry-level educator needs to practice effectively in Arizona schools. The list of test objectives for each test field is the *only* source of information about what a specific test will cover and therefore should be studied carefully.

Practice questions. The practice questions for the selected-response and performance assignment sections included in this section are designed to give you an introduction to the nature of the questions included in the AEPA® tests. The practice questions represent the various types of questions you may expect to see on an actual test; however, they are *not* designed to provide diagnostic information to help you identify specific areas of individual strength or weakness or to predict your performance on the test as a whole.

When you answer the practice questions, you may wish to use the sample answer sheet and sample Written Response Booklet provided in Part 1 to acquaint yourself with these materials. Use the answer key located after the practice questions to check your answers. A sample response is provided immediately following the written performance assignment. The sample response in this guide is for illustrative purposes only. Your written response should be your original work, written in your own words, and not copied or paraphrased from some other work.

To help you identify how the test objectives are measured, the objective statement to which the question corresponds is listed in the answer key. When you are finished with the practice questions, you may wish to go back and review the entire list of test objectives and descriptive statements for your test field.

TEST OBJECTIVES

Basic Skills

SUBTESTS:

- Reading Comprehension (96)
- Writing (97)
- Mathematics (98)

READING COMPREHENSION (96)

0001 Determine the meaning of words and phrases.

For example:

- using the context of a passage to determine the meaning of words with multiple meanings, unfamiliar and uncommon words and phrases, and figurative expressions

0002 Understand the main idea and supporting details in written material.

For example:

- identifying explicit and implicit main ideas
- recognizing ideas that support, illustrate, or elaborate the main idea of a passage

0003 Identify a writer's purpose, point of view, and intended meaning.

For example:

- recognizing a writer's expressed or implied purpose for writing
- evaluating the appropriateness of written material for various purposes or audiences
- recognizing the likely effect of a writer's choice of words on an audience
- using the content, word choice, and phrasing of a passage to determine a writer's opinion or point of view

0004 Analyze the relationship among ideas in written material.

For example:

- identifying the sequence of events or steps
- identifying cause-effect relationships
- comparing and contrasting ideas
- identifying solutions to problems
- drawing conclusions inductively and deductively from information stated or implied in a passage

0005 Use critical reasoning skills to evaluate written material.

For example:

- evaluating the stated or implied assumptions on which the validity of a writer's argument depends
- judging the relevance or importance of facts, examples, or graphic data to a writer's argument
- evaluating the logic or persuasiveness of a writer's argument
- evaluating the validity of analogies
- distinguishing between fact and opinion
- assessing the credibility, objectivity/subjectivity, or bias of the writer or source of written material

0006 Apply study skills to reading assignments.

For example:

- organizing and summarizing information for study purposes
- following written instructions or directions
- interpreting information presented in charts, graphs, or tables

WRITING (97)**0007 Recognize and apply the standard use of verbs.**

For example:

- recognizing standard subject-verb agreement (number and person)
- using standard verb tense
- identifying consistency of tense (e.g., verb endings)

0008 Recognize and apply the standard use of pronouns.

For example:

- recognizing standard pronoun-antecedent agreement (number, gender)
- using standard pronoun case
- identifying standard use of possessive, relative, and demonstrative pronouns

0009 Recognize and apply the standard use of modifiers (e.g., adverbs, adjectives, prepositional phrases).

For example:

- recognizing standard use of adjectives and adverbs
- applying standard use of the comparative and superlative forms
- identifying standard placement of modifiers in sentences (including negative modifiers and prepositional phrases)

0010 Understand how language varies according to the context in which it occurs.

For example:

- recognizing the appropriate use of standard English and formal and informal language in various situations

0011 Identify standard sentence structure (e.g., sentence fragments, run-on sentences).

For example:

- recognizing sentence fragments, run-on sentences, and complete sentences

0012 Identify the standard use of punctuation.

For example:

- recognizing instances in which necessary punctuation has been omitted and identifying instances in which incorrect or extraneous punctuation has been used

0013 Identify the standard use of capitalization.

For example:

- recognizing standard initial capitalization and capitalization of proper words and titles

0014 Identify the use of standard spelling.

For example:

- recognizing the standard spelling of commonly encountered words and education-related words (presented in context)

0015 Demonstrate the ability to prepare a developed composition on a given topic using language and style appropriate to a given audience, purpose, and occasion.

For example:

- composing a coherent, focused, and sustained composition on a given topic
- using language and style appropriate to a specified audience, purpose, and occasion
- stating and maintaining a clear thesis statement
- using organizational strategies to enhance meaning and clarity
- providing reasoned support and specific examples to develop the thesis of the composition
- using effective grammar, sentence structure, and word choice
- applying spelling, capitalization, and punctuation according to the conventions of Standard American English

MATHEMATICS (98)**0016 Use number concepts and computation skills.**

For example:

- adding, subtracting, multiplying, and dividing fractions, decimals, and integers
- using the order of operations to solve problems
- solving problems involving percents
- performing calculations using exponents and scientific notation
- estimating solutions to problems
- using the concepts of "less than" and "greater than"

0017 Solve word problems involving integers, fractions, or decimals (including percents, ratios, and proportions).

For example:

- determining the appropriate operations to solve word problems
- solving word problems involving integers, fractions, decimals, percents, ratios, and proportions

0018 Interpret information from a graph, table, or chart.

For example:

- interpreting information in line graphs, bar graphs, pie graphs, pictographs, tables, charts, or graphs of functions

0019 Understand basic principles of probability and statistics.

For example:

- finding the probability of occurrence of a simple event
- finding the mean, median, mode, or range of a given set of data
- organizing collections of data into frequency charts, scatter plots, and histograms
- drawing inferences based on a statistical summary of data

0020 Graph numbers or number relationships.

For example:

- identifying points from their coordinates, the coordinates of points, or graphs of sets of ordered pairs
- identifying the graphs of equations or inequalities
- finding the slopes and intercepts of lines
- recognizing direct and inverse variation presented graphically

0021 Solve one- and two-variable equations.

For example:

- finding the value of the unknown in one-variable equations
- expressing one variable in terms of a second variable in two-variable equations
- solving a system of two linear equations in two variables

0022 Solve word problems involving one and two variables.

For example:

- solving word problems that can be translated into one-variable linear equations or systems of two-variable linear equations
- identifying the equation or equations that correctly represent the mathematical relationship(s) in word problems

0023 Understand operations with algebraic expressions.

For example:

- factoring quadratics and polynomials
- adding, subtracting, and multiplying polynomial expressions
- performing basic operations on and simplifying rational expressions

0024 Solve problems involving geometric figures.

For example:

- identifying the appropriate formula for solving geometric problems
- solving problems involving two- and three-dimensional geometric figures
- solving problems involving right triangles using the Pythagorean theorem

0025 Apply reasoning skills.

For example:

- using algorithmic logic
- drawing conclusions using the principles of similarity, congruence, parallelism, and perpendicularity
- using inductive and deductive reasoning

PRACTICE QUESTIONS

Field 96: Basic Skills: Reading Comprehension

Read the selection below, written in the style of a social studies text; then answer the four questions that follow.

African Americans' Struggle for Civil Rights

- 1 The period immediately following the Civil War was a time of great hope for African Americans. It was also a time of momentous constitutional change, as the nation sought to extend those liberties enshrined in the Bill of Rights to all Americans, Black and White. The Thirteenth Amendment abolished slavery, the Fourteenth Amendment guaranteed all citizens equal protection of the laws, and the Fifteenth Amendment declared that no one could be denied the right to vote "on account of race, color, or previous condition of servitude." In subsequent decades, however, it became all too apparent, at least to African Americans and an unfortunately small number of concerned White Americans, that the promises contained in these amendments were not being honored. By century's end, racial segregation was still an inescapable fact of American social life, in the North as well as the South. At the same time, most southern states had adopted devices such as the poll tax, literacy test, and White primary to strip African Americans of their right to vote.

- 2 The struggle to close the gap between constitutional promise and social reality would pass through two important stages. In the first stage, organizations such as the NAACP worked through the courts to restore the meaning of the Reconstruction-era

amendments. These efforts culminated in the 1954 Supreme Court decision in *Brown v. Board of Education of Topeka*, which outlawed segregation in public schools. The decision also stated that separate facilities were inherently unequal, thus providing a legal basis for subsequent suits to desegregate other kinds of public accommodations.

- 3 As it turned out, the principles enunciated in the *Brown* decision were more easily stated than enforced. Court orders to desegregate public schools often encountered massive resistance. Seeing this, African Americans and their supporters began to adopt new tactics. As they did, the struggle for African American rights entered its second stage, a stage that would be characterized by direct action rather than legal challenges and would be played out in the streets rather than in the courts. In turning to civil disobedience, leaders such as Martin Luther King, Jr., made it possible for all victims of racial injustice to take action in a way that was direct and forceful, but also peaceable. And through the power of their moral example, they soon won widespread support for their cause. In response to these developments, Congress took steps to restore the full meaning of the Fourteenth and Fifteenth Amendments by passing the Civil Rights Act of 1964 and the Voting Rights Act of 1965.

4 The enactment of these measures by no means marked the end of the civil rights movement for African Americans. There was still much to be done. Yet the passage of these acts nevertheless had far-reaching significance. The acts not only helped correct

social inequities that had persisted far too long, they also showed that the Constitution means something, however long it may sometimes take to give substance to that meaning. This is no small matter in a nation of laws.

1. Which of the following best defines the word *culminated* as it is used in paragraph 2 of the selection?
 - A. initiated a lengthy process
 - B. completed the initial phase of a project
 - C. began a period of decline
 - D. reached the highest point of achievement
2. According to the selection, many communities refused to enforce the *Brown* decision. African Americans and their supporters tried to overcome this problem by:
 - A. demanding that Congress pass additional civil rights legislation.
 - B. engaging in nonviolent direct action.
 - C. selecting new leaders for the civil rights movement.
 - D. requesting the assistance of the Supreme Court.
3. Which of the following assumptions most influenced the views expressed by the writer in this selection?
 - A. Nations that profess a belief in the rule of law should ensure that all laws are observed.
 - B. Social injustice can be eliminated most effectively through amendments to the Constitution.
 - C. As a rule, people must be forcibly compelled to respect the rights of others.
 - D. Without forceful leaders, social movements are unlikely to gain broad support.

4. Which of the following statements best summarizes the information presented in the selection?
- A. After the Civil War, the Thirteenth, Fourteenth, and Fifteenth Amendments were adopted to protect and extend the rights of African Americans. By century's end, however, racial segregation was still an inescapable fact of American social life. It would remain so until the 1954 Supreme Court decision in *Brown v. Board of Education of Topeka*, which called for the full desegregation of all kinds of public accommodations.
 - B. During the past century, there have been significant changes in the leadership of the civil rights movement. Organizations such as the NAACP spearheaded the initial phase of the struggle for African American rights. As legal action gave way to direct action, however, leadership came primarily from individuals like Martin Luther King, Jr.
 - C. Adopted immediately after the Civil War, the Thirteenth Amendment abolished slavery, the Fourteenth Amendment guaranteed African Americans equal protection of the laws, and the Fifteenth Amendment gave African Americans the right to vote. African Americans and their supporters have long struggled to give meaning to these amendments.
 - D. Efforts by African Americans and their supporters to close the gap between the constitutional promises of the Reconstruction-era amendments and the realities of American social life passed through two important stages. The first stage, which focused on legal action, culminated in the *Brown* decision of 1954. This stage was followed by a direct action phase that resulted in the passage of the civil rights acts of the sixties.

PRACTICE QUESTIONS

Field 97: Basic Skills: Writing

Read the selection below, adapted (errors added) from *Inquiry Into Physics*, Third Edition, by Vern J. Ostdiek and Donald J. Bord, 1995; then answer the four questions that follow.

¹What's in a name! ²Well, for the elements, names contain clues to their chemical and physical properties and to the scientists who figured prominently in their isolation. ³Consider the element bromine (Br). ⁴The word *bromine* derives from the Greek word *bromos*, meaning "stench"—an apt description for this reddish brown liquid that vaporizes easily at room temperature to produce a red gas with a strongly disagreeable odor. ⁵The element dysprosium (Dy) also takes its name from a Greek word, *dysprositos*, meaning "hard to get at." ⁶This, too, seems an appropriate term to apply to an element first discovered in 1886 but not isolated in a relatively pure form until about 1950. ⁷Or take the element iridium (Ir). ⁸Its name derives from the latin word for rainbow, *iris*. ⁹This is also a rather nice description of an element whose crystalline salts are brilliantly colored.

¹⁰A few of the element names derive from the names of scientists. ¹¹Who have contributed to the discovery or isolation of the elements. ¹²Specific cases include Mendelevium (Md), named after Dmitri Mendeleev, a Russian chemist who developed the periodic table of the elements; curium (Cm), named for Pierre and Marie Curie who discovered the elements polonium (Po) and radium (Ra); and gadolinium (Gd), named after Finnish chemist Johan Gadolin, the Discoverer of yttrium. ¹³In sum, there can be a lot in a name, especially if it's the name of a chemical element.

1. Which change is needed in the passage?
 - A. Part 4: Change "that" to "which."
 - B. Part 5: Change "its" to "it's."
 - C. Part 9: Change "who's" to "whose."
 - D. Part 13: Change "it's" to "its."
2. Which part is a sentence fragment?
 - A. Part 1
 - B. Part 3
 - C. Part 7
 - D. Part 11
3. Which change is needed in the passage?
 - A. Part 1: Change the exclamation mark after "name" to a question mark.
 - B. Part 2: Delete the comma after "well."
 - C. Part 4: Insert a dash after "liquid."
 - D. Part 6: Insert a comma after "element."
4. Which underlined word in the passage illustrates standard capitalization?
 - A. latin
 - B. Mendelevium
 - C. Finnish
 - D. Discoverer

Below are the directions for the Basic Skills: Writing performance assignment.

DIRECTIONS FOR THE PERFORMANCE ASSIGNMENT

This section of the test consists of a performance assignment. **The assignment can be found on the next page.** You are asked to prepare a written response on the assigned topic. You should use your time to plan, write, review, and edit your response for the assignment.

Read the assignment carefully before you begin to work. Think about how you will organize your response. You may use any blank space in this test booklet to make notes, write an outline, or otherwise prepare your response. **However, your score will be based solely on the version of your response written in Written Response Booklet B.**

Your response will be evaluated based on the following criteria.

- **APPROPRIATENESS:** the extent to which the response addresses the topic and uses language and style appropriate for the specified audience, purpose, and occasion
- **FOCUS AND ORGANIZATION:** the extent to which the response states and maintains the thesis statement and uses organizational strategies to enhance meaning and clarity
- **SUPPORT:** the extent to which the response provides reasoned support and specific examples to develop the thesis
- **GRAMMAR, SENTENCE STRUCTURE, AND WORD CHOICE:** the extent to which the response uses effective grammar, sentence structure, and word choice
- **CONVENTIONS:** the extent to which the response demonstrates the ability to spell common words and to use the conventions of capitalization and punctuation accurately

Your response will be evaluated based on your demonstrated ability to express and support opinions, not on the nature or content of the opinions expressed. The final version of your response should conform to the conventions of Standard American English. This should be your original work, written in your own words, and not copied or paraphrased from some other work.

Be sure to write about the assigned topic. Please write legibly. You may not use any reference materials during the test. Remember to review your work and make any changes you think will improve your response.

Below is the scoring scale for the Basic Skills: Writing performance assignment.

Scoring Scale

Score Point	Score Point Description
4	The "4" response reflects thorough understanding and strong command of written performance. <ul style="list-style-type: none">• The response fully addresses the topic and uses appropriate language and style.• The thesis statement is clearly expressed; focus and clarity are effectively maintained, and organizational strategies enhance meaning.• Support is substantial, well-reasoned, relevant, and specific.• The writer shows mastery of grammar, effective sentence structure, and precise word choice.• There are few, if any, errors in spelling, punctuation, or capitalization.
3	The "3" response reflects adequate understanding and command of written performance. <ul style="list-style-type: none">• The response largely addresses the topic and uses generally appropriate language and style.• A thesis statement is adequately expressed; focus and clarity are adequately maintained, and organizational strategies generally convey meaning.• Support is general, but reasoned and mostly relevant.• The writer shows adequate understanding of grammar; minor errors in sentence structure and word choice may appear, but do not impede meaning.• Minor errors in spelling, punctuation, and capitalization may occur, but they do not impede meaning.
2	The "2" response reflects limited understanding and command of written performance. <ul style="list-style-type: none">• The response partially addresses the topic and may use inappropriate language and style.• A thesis statement may be expressed; focus and clarity are only partially maintained, and ineffective or illogical organizational strategies may impede meaning.• Support may be incomplete, partially reasoned, imprecise, redundant, or irrelevant.• The writer shows limited understanding of grammar; poorly structured sentences and imprecise word choice may impede meaning.• Many errors in spelling, punctuation, and capitalization occur and may impede meaning.
1	The "1" response reflects weak understanding and command of written performance. <ul style="list-style-type: none">• The response attempts to address the topic, but language and style may be inappropriate.• A thesis statement, if present, is weak; focus and clarity are largely obscured by a lack of organizational strategies.• Support, if present, is deficient, irrelevant, and/or confused. There are few or no specific examples.• The writer shows poor understanding of grammar; errors in sentence structure and word choice may be so serious and numerous that they impede meaning.• Numerous errors in spelling, punctuation, and capitalization often impede meaning.
U	The response is unrelated to the assignment, is illegible, is not primarily in the target language, or does not contain a sufficient amount of original work to score.
B	There is no response to the assignment.

Practice Performance Assignment

5. Beginning a new task, job, or phase of life can be exciting. In an essay to be read by a college instructor, describe a situation—such as a task, job, or phase of life—in which you began something new and exciting and explain how that experience affected you. Your purpose is to describe a situation in which you began something new and exciting and the effect this experience had on you, using specific examples.

Sample Strong Response for Performance Assignment

One new and exciting phase in my quest to become a certified teacher was my student teaching experience. I was looking forward to my first opportunity to put into practice all that I had learned in school and to lead a class full of eager students. Of course, I assumed the experience would be well-supervised and conducted under the watchful eye of an experienced professional educator who would impart a wealth of secrets for success in teaching. I envisioned that the process would be well-planned and gradual, moving from observation to a well-timed assumption of more classroom responsibilities when I was ready. At the end of the term, I would emerge as a strong, confident practitioner of the art of teaching. What could go wrong?

The first meeting with my mentor teacher, Mrs. Goodson, went smoothly. She was approaching retirement age and a veteran of the high school English department. Mrs. G had worked with a number of student teachers over the years and had a well-organized plan to guide me through my first teaching experience. Her class load consisted largely of American Literature sections for high-achieving students. She planned for me to spend the first week observing her and familiarizing myself with the curriculum for her classes. I left that meeting feeling confident that I was in good hands and would benefit greatly from her guidance and knowledge. What could possibly go wrong?

I walked in the front doors of the school the next morning filled with a combination of excitement and some curiosity about the ambulance with lights flashing parked directly in front of the school. A few steps later, my curiosity changed to alarm as Mrs. Goodson—my mentor, my guide—was wheeled past me on a gurney on her way to the hospital. I overheard something about slipping on spilled coffee in the teacher's lounge and a broken hip. She gave me a weak wave as she rolled by and offered me her first and last words of wisdom, "Good luck. You'll do fine." That was the last time I saw Mrs. Goodson and the first of many answers to the question, "What could go wrong?"

The next few days were a blur as the school scrambled to reassign duties and preserve my student teaching assignment. Eventually, another experienced teacher was assigned to Mrs. Goodson's advanced level classes, and I was given a full load of Freshman English. I was also told that some of the students were "challenging" and

(continued on next page)

Sample Strong Response for Performance Assignment (*continued*)

needed extra "guidance," but not to worry because someone would come check on me periodically. By the time I entered the classroom, alone, to face my first group of students, my previous excitement had turned to fear. The idea of pursuing alternative careers suddenly seemed like a very attractive option. But my dream was to be a teacher and I told myself not to let a few little setbacks throw me off-track.

That term turned out to be a true trial by fire but one of the best learning experiences I have ever had. Of course, the "someone" who was to check on me periodically never materialized, and I quickly learned to be my own mentor. Instead of waiting for advice, I actively sought out other teachers to observe, asked questions, and applied what seemed most useful for my situation. I used my inexperience to bond with the students by acknowledging common doubts and insecurities about our abilities. We entered into a shared journey of discovery where I searched for effective ways to facilitate their learning while they struggled to acquire some basic writing skills in the midst of a challenging behavioral environment. My methods for maintaining a constructive classroom environment were partly applications of learned strategies, a lot of trial and error, and a few parts desperation. (Once, when a baseball-sized spitball whizzed by my ear and splattered on the blackboard, I even tried an application of controlled anger.) Another strategy involved alternating periods of basic instruction with opportunities for students to express themselves freely about topics that interested them. These more creative, personal expressions proved to be a constructive way to release energy and frustration that otherwise might have resulted in negative behavior.

Over time, I developed many successful strategies that met both the needs of my students and my goals as a teacher. I was able to grow, as a person and a teacher, far beyond what I would have in a supervised, controlled environment. I was forced to work "without a net" and as a result made a more complete transition from college student to teacher than would have been possible in a more traditional experience. This exciting but frightening experience helped make me a stronger, more confident teacher and enabled me to enter the next phase of my career: a full-time, paid, professional teaching position, with renewed hope and excitement.

PRACTICE QUESTIONS

Field 98: Basic Skills: Mathematics

DEFINITIONS, ABBREVIATIONS, AND FORMULAS

Provided below and on the following two pages are definitions, abbreviations, and formulas that may help you perform the calculations on the test. You may not use a calculator on this subtest.

Definitions

=	equal to	$\not\leq$	not less than or equal to	\sim	similar to
\neq	not equal to	π	≈ 3.14	\cong	congruent to
\approx	approximately equal to	\angle	angle	$\not\equiv$	not congruent to
>	greater than	$m\angle$	measure of angle	\pm	plus or minus
<	less than		right angle	\overline{AB}	line segment AB
\geq	greater than or equal to	\triangle	triangle	\overleftrightarrow{AB}	line AB
\leq	less than or equal to	\perp	perpendicular to	mAB	measure of \overline{AB}
\geq	not greater than or equal to	\parallel	parallel to	$\frac{a}{b}$ or $a : b$	ratio of a to b

Abbreviations for Units of Measurement

	U.S. Standard		Metric					
Distance	in.	inch	m	meter		Time	sec.	second
	ft.	foot	km	kilometer			min.	minute
	mi.	mile	cm	centimeter			hr.	hour
			mm	millimeter				
Volume	gal.	gallon	L	liter				
	qt.	quart	mL	milliliter				
			cc	cubic centimeter				
Mass	lb.	pound	g	gram				
	oz.	ounce	kg	kilogram				
			mg	milligram				
Temperature	$^{\circ}\text{F}$	degree Fahrenheit	$^{\circ}\text{C}$	degree Celsius				
Speed	mph	miles per hour						

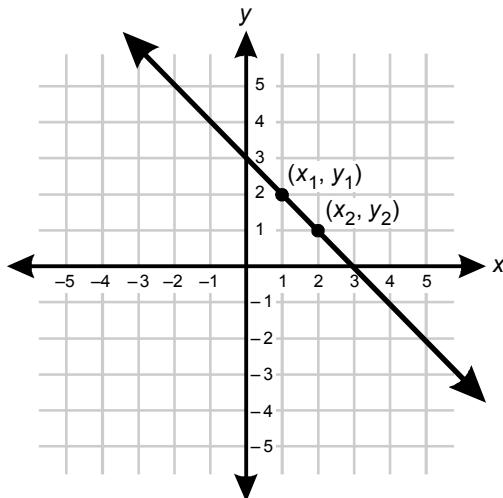
Formulas

Distance = Rate × Time

Quadratic formula

If $ax^2 + bx + c = 0$, and $a \neq 0$,

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$



Line

$$\text{Slope} = m = \frac{y_2 - y_1}{x_2 - x_1}$$

Slope-intercept form for the equation of a line

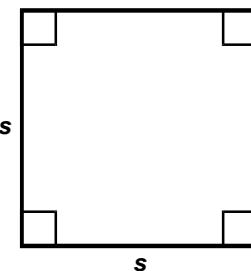
$$y = mx + b$$

Point-slope form for the equation of a line

$$y_2 - y_1 = m(x_2 - x_1)$$

$$\text{Distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

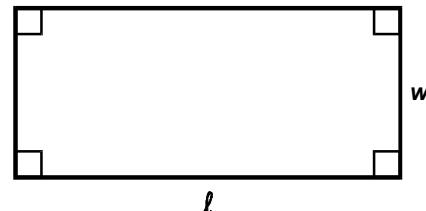
$$\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$



Square

$$\text{Area} = s^2$$

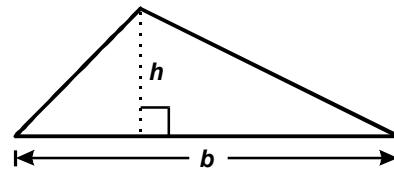
$$\text{Perimeter} = 4s$$



Rectangle

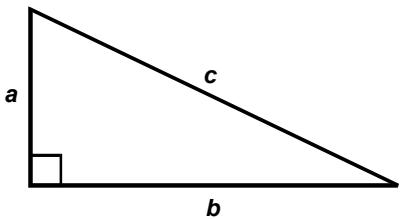
$$\text{Area} = lw$$

$$\text{Perimeter} = 2l + 2w$$



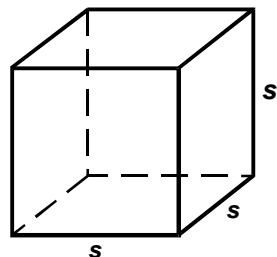
Triangle

$$\text{Area} = \frac{1}{2}bh$$



Right triangle

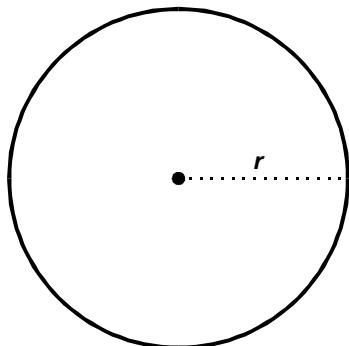
Pythagorean formula: $c^2 = a^2 + b^2$



Cube

Surface area = $6s^2$

Volume = s^3

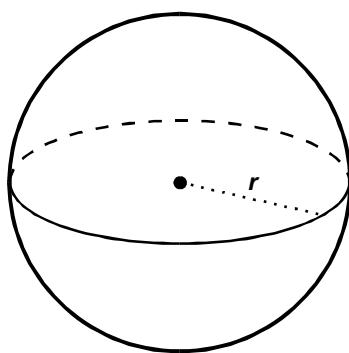


Circle

Area = πr^2

Circumference = $2\pi r$

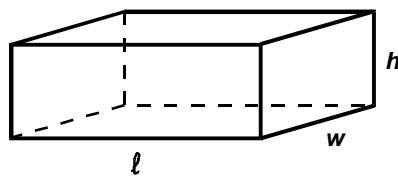
Diameter = $2r$



Sphere

Surface area = $4\pi r^2$

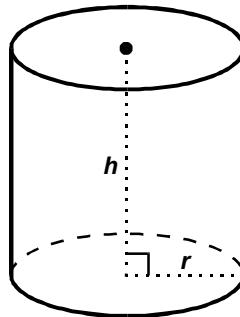
Volume = $\frac{4}{3}\pi r^3$



Rectangular solid

Surface area = $2lw + 2lh + 2wh$

Volume = lwh



Right cylinder

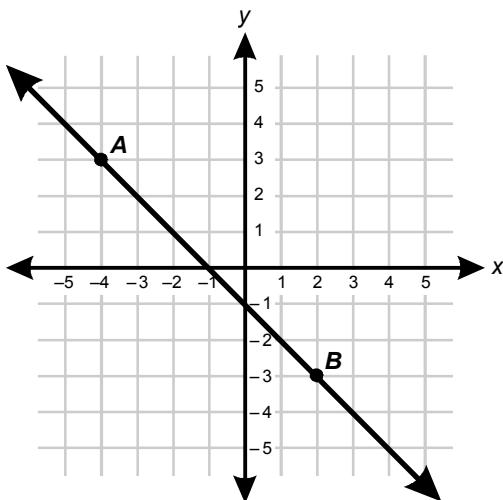
Surface area = $2\pi rh + 2\pi r^2$

Volume = $\pi r^2 h$

End of Definitions, Abbreviations, and Formulas

1. A town planning committee must decide how to use a 115-acre piece of land. The committee sets aside 20 acres of the land for watershed protection and an additional 37.4 acres for recreation. How much of the land is set aside for watershed protection and recreation?
- A. 43.15 acres
B. 54.6 acres
C. 57.4 acres
D. 60.4 acres

2. Use the graph below to answer the question that follows.



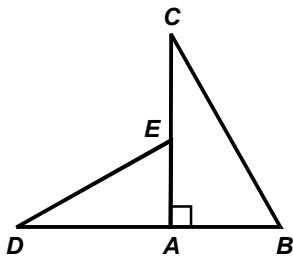
Which of the following equations represents line AB ?

- A. $y = -x - 1$
B. $-2y = x + 1$
C. $y = x - 1$
D. $2y = -x + 1$

3. Which of the following is a factor of $9 - x^2 + 4xy - 4y^2$?

- A. $(3 - x - 2y)$
- B. $(3 - x + 2y)$
- C. $(3 + x + 2y)$
- D. $(3 - x + 4y)$

4. Use the diagram below to answer the question that follows.



If $\overline{CA} \perp \overline{DB}$, $\overline{AE} \cong \overline{AB}$, and $\angle D = \angle C$, which of the following must be true?

- A. $\overline{AB} = \frac{1}{3} \overline{DB}$
- B. $\overline{DE} \cong \overline{CA}$
- C. $\overline{AE} = \frac{1}{2} \overline{AC}$
- D. $\overline{DA} \cong \overline{CA}$

ANSWER KEY

Basic Skills

Basic Skills: Reading Comprehension (96)

Question Number	Correct Response	Objective
1.	D	Determine the meaning of words and phrases.
2.	B	Analyze the relationship among ideas in written material.
3.	A	Use critical reasoning skills to evaluate written material.
4.	D	Apply study skills to reading assignments.

Basic Skills: Writing (97)

Question Number	Correct Response	Objective
1.	C	Recognize and apply the standard use of pronouns.
2.	D	Identify standard sentence structure (e.g., sentence fragments, run-on sentences).
3.	A	Identify the standard use of punctuation.
4.	C	Identify the standard use of capitalization.

Basic Skills: Mathematics (98)

Question Number	Correct Response	Objective
1.	C	Solve word problems involving integers, fractions, or decimals (including percents, ratios, and proportions).
2.	A	Graph numbers or number relationships.
3.	B	Understand operations with algebraic expressions.
4.	D	Apply reasoning skills.