KAPLAN

ATI TEAS®

STRATEGIES, PRACTICE & REVIEW with 2 Practice Tests

ONLINE + BOOK

EXACTLY WHAT YOU NEED TO SCORE HIGHER

- Fully updated to the new ATI TEAS blueprint
- 2 full-length practice tests: 1 in book, 1 online
- 500+ realistic practice questions with explanations
- Comprehensive review for every section
- Expert strategies to improve your score

HIGHER SCORE GUARANTEED*

*[illegible]

ATI TEAS®

WHAT YOU NEED TO KNOW

Table of Contents

Special thanks to the team that made this book possible: Gina Allison, Erika Blumenthal, Joel Boyce, Chanti Burnette, Matthew Callan, Kyra Cerri, Irene Cheung, Dorothy Cummings, Lola Dart, Marilyn Engle, Paula Fleming, Bootsie, Dan Frey, Lauren Hanson, Justine Harkness, Allison Harm, Jack Hayes, Cinzia Iacono Pelletier, Stephanie Jolly, Ashley Kapturkiewicz, Jennifer Land, Karen Lilyquist, Edwina Lui, Heather Maigur, Maureen McMahon, Nou Moua, Alex Ricken, Christine Ricketts, Gordon Spector, Bruce Symaka, Lo'Rita Vargas, Pedro Villanueva, Dan Wittich, Jessica Yee, and many others.

Published by Kaplan Publishing, a division of Kaplan, Inc.

750 Third Avenue

New York, NY 10017

ISBN: 978-1-5062-3451-9

Kaplan Publishing books are available at special quantity discounts to use for sales promotions, employee premiums, or educational purposes. For more information or to purchase books, please call the Simon & Schuster special sales department at 866-506-1949.

Introduction

Congratulations on deciding to apply to a health science program! You will soon join the millions of nurses and other professionals who make a significant positive difference in the lives of others.

As you know, taking the ATI TEAS® is an important early step in your application process. But first, you'll need to evaluate your readiness; begin by becoming familiar with the test structure and content areas. Then make a plan to achieve your best possible score—and be accepted by the school of your choice!

ABOUT THE TEAS

The ATI TEAS was developed to evaluate the academic readiness of applicants to health science programs, such as nursing programs. *TEAS* stands for Test of Essential Academic Skills. *ATI* is the name of the testmaker and stands for Assessment Technologies Institute.

The questions you will see on the TEAS assess knowledge and skills that have been identified by health science schools as relevant to assessing your readiness to begin a college program of study. The material tested is typically taught in grades 7–12. The TEAS tests material in four content areas as follows:

Content Area	Number of Questions (Number of Scored Questions)	Time Limit
Reading	53 (47)	64 minutes
Mathematics	36 (32)	54 minutes
Break		10 minutes
Science	53 (47)	63 minutes
English and language usage	28 (24)	28 minutes
Total	**170 (150)**	**219 minutes**

The 20 unscored questions are experimental questions included to test their validity. You will not know whether a question is scored or unscored, so do your best on every question.

PREPARING FOR THE TEAS

You may feel confident that you can tackle most TEAS questions and only need to review a few areas or practice some skills a little more. Alternatively, you may want to study and practice much more in order to approach the test with confidence.

No matter your confidence level, you can and *will* improve if you set aside time to study for the TEAS. Block out study time on your calendar, just as you would for any other appointment. These blocks of time are appointments with yourself, so keep them!

Every time you sit down to study, set a goal for that session. Examples of goals are "Complete two Reading lessons and understand the explanation of every practice question," or "Memorize the path of blood through the body and be able to diagram it." Setting a goal at the beginning of your study session sets you up to feel great when you have achieved it at the end of the session.

DEVELOPER

The following table is unique to the *TEAS Book* .

Use Kaplan's TEAS Resources

Kaplan’s **ATI TEAS® Qbank** is the ideal way to practice TEAS-style questions and be confident on Test Day!

- Master winning strategies through practice with more than 500 questions across the test’s four major content areas
- Customize quizzes by content area, sub-content area, and topic
- Study comprehensive explanations for every question
- Target your strengths and weaknesses with detailed performance feedback to measure your progress and help with study planning

With the Qbank , you can create a practice set of questions in one topic, try your best on them, and then review the explanations thoroughly. If you missed a question, review the explanation until you understand the correct answer. Then do the question again. Of course, you already know the answer, but actually working the question correctly will reinforce the memory in your brain, helping you to retain the knowledge so you will know it on Test Day.

In addition to the QBank, Kaplan offers a comprehensive guide, ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** . With exam-focused instruction and targeted practice, *ATI TEAS Strategies, Practice & Review with 2 Practice Tests* provides the thorough preparation you need to achieve the best score possible and get into the school of your choice.

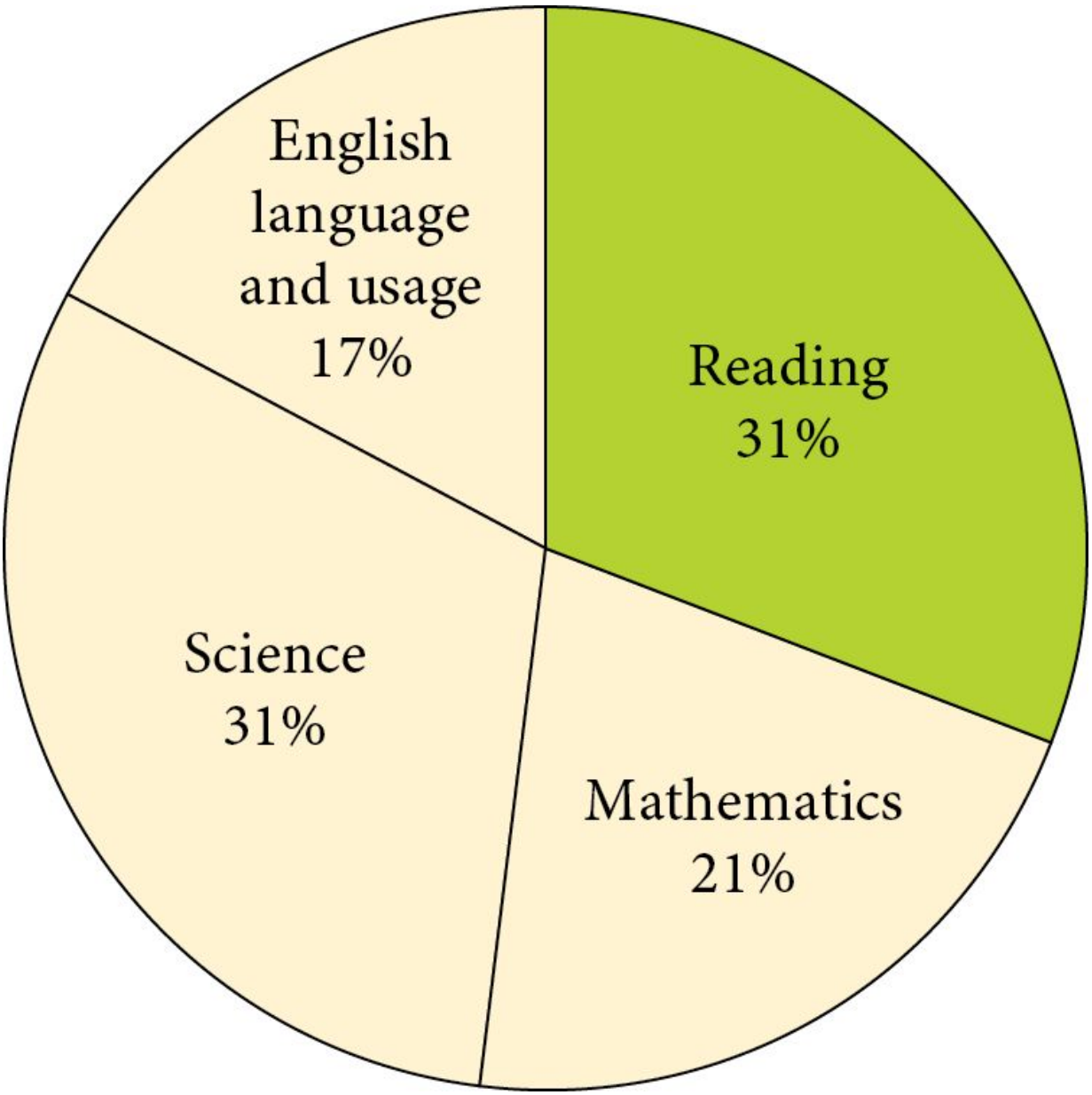
Kaplan's ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** includes:

- A full-length diagnostic test with an explanation of every question
- Tools to help you plan your studies
- Lessons that cover all of the skills and concepts on the test
  - Kaplan Methods for every question type
  - Worked examples that show the expert approach
  - Key terms in bold and a glossary with definitions of every key term
  - Key takeaway summaries
  - Practice questions with explanations

- Online resources:
  - An additional full-length, online test with an explanation of every question
  - A 50-question Qbank for additional practice.

Reading

Understanding written material will be critical to your success in a nursing or health science program and later in your career as a healthcare professional. Whether reading a textbook, a patient's chart, or research study results, you will need to be able to grasp an author's main idea and purpose, evaluate trends or patterns, focus on important details, and draw appropriate conclusions. The TEAS *Reading* content area tests your ability to perform these tasks.



THE TEAS READING CONTENT AREA

Of the 170 items on the TEAS, 53 will be in the *Reading* content area, and you will have 64 minutes, or just over a minute per question, to answer them. However, most questions will require reading a short passage or a figure or table first. As a rule of thumb, if you invest about 45 seconds in reading a

paragraph of text, a table, or a figure and take about 30 seconds to answer each question, you will stay on pace to complete the *Reading* section.

Of course, some passages, tables, and figures are very short and will take much less than 45 seconds to read, while others are longer and will require more time to map. The key is to work at a steady pace.

Of the 53 *Reading* questions, 47 will be scored and 6 will be unscored. You won't know which questions are unscored, so do your best on every question.

Kaplan's ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** includes a full glossary that includes all terms that appear in **bold** , as well as chapters covering the areas of *Reading* the TEAS tests most:

- Chapter 1: Main Ideas and Supporting Details
  - Lesson 1: Strategic Reading
  - Lesson 2: Reading for Details
  - Lesson 3: Making Inferences
  - Lesson 4: Understanding Sequences of Events

- Chapter 2: Passage Structure and Word Choices
  - Lesson 1: Understanding the Author's Purpose and Point of View
  - Lesson 2: Using Text Structure and Features
  - Lesson 3: Determining Word Meaning

- Chapter 3: Integrating Ideas to Draw Conclusions
  - Lesson 1: Comparing and Contrasting Multiple Sources
  - Lesson 2: Making Inferences About Fiction
  - Lesson 3: Evaluating an Argument

- Lesson 4: Integrating Data From Different Formats

Kaplan’s **ATI TEAS® Qbank** is the ideal way to practice TEAS-style questions and be confident on Test Day!

MAIN IDEA

Many TEAS questions ask you to identify the main idea, which is the subject the author is writing about or the point he or she is making in the stimulus. You can identify the main idea by asking yourself, "What does the author want me to know?" You should also ask, "Why does the author want me to know it?" Sometimes the writer will be simply describing or explaining a topic, and other times the author will be trying to persuade you to agree with a particular point of view.

The correct answer to a question about the main idea, topic, or author’s primary purpose in writing is broad enough to reflect the entire stimulus, but not so broad that it goes beyond the author’s point. Eliminate answer choices that are supporting details; these answers are too narrow.

SUPPORTING DETAILS

Other questions ask about details the author includes to support the main idea. Details are explicitly stated in the stimulus, and important details in passages—the kind of details you are likely to see a question about—are usually indicated by keywords indicating contrast, emphasis, or a sequence. Contrast keywords, which signal a different idea or example, include "however" or "on the other hand." "Especially" or "surprisingly" are

examples of emphasis key words, signaling a fact or idea the author thinks is important. Words like "first," "second," and "third" or a series of dates indicate a sequence of events or steps. Details may also be highlighted by structural features of the text, like headings.

Follow along as a TEAS expert answers a main idea question.

Like most superheroes, the Incredible Hulk possesses supernatural abilities. Among other talents, he has unlimited strength and the ability to leap several miles. Though theoretically capable of great evil, he is on the side of good, an especially important position given the time in which he first appeared in Marvel comics. First created at the height of post–World War II paranoia about nuclear war, the Incredible Hulk stories offer a fascinating look at the dual nature of human beings. On the one hand, he is a mild-mannered, bespectacled scientist. On the other, he is a raging, rampaging beast. More than a statement about the dangers of the Atomic Age, the Hulk is a reflection of the two sides in each of us—the calm, logical human and the raging animal.

Question	Analysis

Question	Analysis
The author’s primary purpose is	This is a main idea question. Consider the entire passage to determine the author’s purpose. The author’s main point is summarized in the last sentence. The other sentences in the paragraph are supporting details. Predict that the correct answer is about what the Incredible Hulk symbolizes.
(A) to explain the confusion people can feel due to their dual nature.	The author does not discuss any confusion people might feel about their dual nature.

Question	Analysis
(B) to argue that the Incredible Hulk symbolizes more than the particular concerns of his time.	Correct. This matches your prediction. The author's purpose is to argue that the Incredible Hulk symbolized not only post–World War II anxiety about nuclear war, but also a more universal concern about human nature.
(C) to discuss the cultural and psychological importance of comic books in the post–World War II era.	The passage is not about comic books in general, only about the Incredible Hulk.
(D) to critique people's fears about nuclear war in the mid-twentieth century.	This suggests that the author has an opinion about people's fears, but the author's opinion is about what the Incredible Hulk symbolized.

Reading Practice Questions

These are examples of the types of questions you will see on the TEAS. Visit **http://kaptest.com/teasqbank** to learn about Kaplan's **ATI TEAS® Qbank** , with more than 500 test-like questions.

1. For do-it-yourself types, the cost of getting regular oil changes seems unnecessary. After all, the steps are fairly easy as long as you exercise basic safety precautions. First, make sure that the car is stationary and on a level surface. Always use the emergency brake to ensure that the car does not roll on top of you. Next, locate the drain plug for the oil under the engine. Remember to place the oil drain pan under the plug before you start. When the oil is drained fully, wipe off the drain plug and the plug opening and then replace the drain plug. Next, simply place your funnel in the engine and pour in the new oil. Be sure to return the oil cap when you are done. Finally, run the engine for a minute and then check the dipstick to see if you need more oil in your engine.

   After draining the old oil from the engine, you should

   (A) replace the oil cap.
   (B) run the engine for a moment and check the dipstick.
   (C) wipe off and replace the drain plug.
   (D) engage the emergency brake.

2. Many people strongly dislike snakes, finding them unappealing to look at and uncomfortable to touch. On the contrary, snakes are fascinating creatures, with their iridescent scales and elegant movements.

   Which word best describes the author's attitude toward snakes?

   (A) Disgusted
   (B) Appreciative
   (C) Uninterested
   (D) Fearful

Questions 3–4 are based on the following passage.

The English-born fashion designer Charles Frederick Worth is widely considered the inventor of haute couture, establishing new benchmarks for quality of construction and luxuriousness of materials. At his Paris salon, he created grand clothes for European royalty, including the Empress Eugénie. Despite his illustrious clientele and painstaking craftsmanship, his clothing was also suitable for everyday life. Yet, his importance goes beyond making beautiful dresses. Because of his relentless self-promotion—by the 1870s, his name was familiar not only to the wealthy women who could afford his creations, but also to the readers of the newly popular women's magazines—he was the forerunner of today's superstar fashion designers. Thus, the structure of the fashion industry today owes a great deal to this nineteenth-century entrepreneur.

3. According to the passage, which of the following contributes to a piece of clothing being considered haute couture?

(A) Its suitability for everyday life
(B) Its appeal to European royalty
(C) Its quality of construction and luxuriousness of materials
(D) Its creator's relentless self-promotion

4. Which of the following statements, if true, would strengthen the author's argument?

(A) Worth has a prominent entry in an encyclopedia of fashion throughout history.
(B) Many fashion designers today seek to be well-known among people who cannot afford their clothes.
(C) Worth's clothes for the Empress Eugénie are still considered a model for designers who receive commissions from European royal families.
(D) Worth was not only famous during his lifetime, but ran a highly profitable business.

5. Dear Grandma,

Thanks so much for the birthday card! I love it. The flowers are so pretty. They remind me of your garden. When the snow melts here in the Rockies, I'll come visit you and we can plant flowers together.

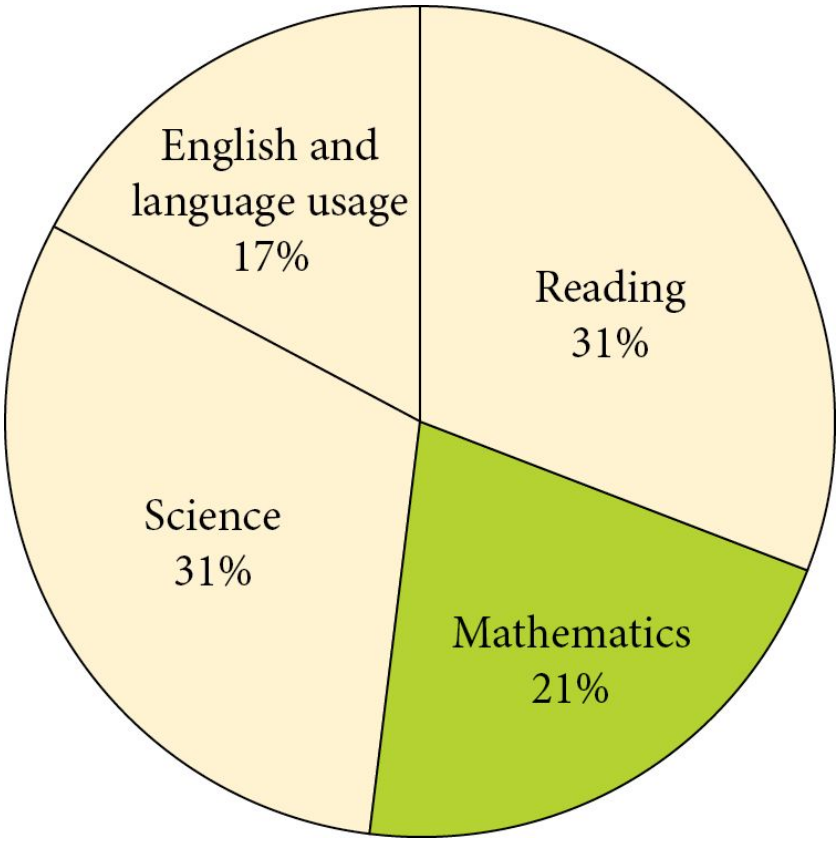
I love you!

Based on the information in this letter, the writer’s birthday is most likely in

(A) January.
(B) May.
(C) August.
(D) September.

Mathematics

As a nursing or health science program student, and later in your career as a healthcare professional, you will need to interpret data, perform calculations, and translate real-world situations into math to respond appropriately. The TEAS *Mathematics* content area tests your ability to perform arithmetic and algebra. You will apply these skills to solving word problems, interpreting charts and graphs, using descriptive statistics to characterize data sets, understanding relationships between numbers, calculating geometric values, and using measurements appropriately, including by converting from one unit of measure to another.



Questions by Content Area

THE TEAS MATHEMATICS CONTENT AREA

Of the 170 items on the TEAS, 36 will be in the *Mathematics* content area, and you will have 54 minutes to answer them, or about 1.5 minutes per question.

Of the 36 *Mathematics* questions, 32 will be scored and 4 will be unscored. You won't know which questions are unscored, so do your best on every question.

Kaplan's ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** includes a full glossary that includes all terms that appear in **bold** , as well as chapters covering the areas of *Mathematics* the TEAS tests most:

- Chapter 1: Arithmetic and Algebra
  - Lesson 1: Arithmetic
  - Lesson 2: Algebra
  - Lesson 3: Solving Word Problems
  - Lesson 4: Ratios, Percentages, and Proportions
  - Lesson 5: Estimating and Rounding
- Chapter 2: Statistics, Geometry, and Measurements
  - Lesson 1: Graphs and Tables
  - Lesson 2: Statistics
  - Lesson 3: Covariance and Causality
  - Lesson 4: Geometry
  - Lesson 5: Converting Measurements

ARITHMETIC

Addition, subtraction, multiplication, and division are **operations** . If there are more than two operations in a single expression, they *must* be performed in a specific manner called the **order of operations** . Use the made-up word PEMDAS to remember the order in which to perform the operations in an expression. PEMDAS stands for:

- P arentheses
- E xponents
- M ultiplication and D ivision (from left to right)
- A ddition and S ubtraction (from left to right)

Ratios are representations of the relationship of one quantity to another. They can be expressed verbally ("The ratio of cats to dogs is 3 to 4") or by separating the two quantities with a colon (3:4). Ratios can also be written as fractions ($\frac{3}{4}$). Because it is common practice to reduce ratios to their lowest terms, ratios do not necessarily specify the actual quantities. For instance, if there are 9 cats and 12 dogs in a pet store, the ratio $\frac{9}{12}$ can be simplified to $\frac{3}{4}$ by dividing both the numerator and denominator by 3.

ALGEBRA

A **variable** is a letter used to represent a numerical value that is unknown. The value of a specific variable (such as x) will be the same throughout a given problem, but it can differ from one problem to another.

A **constant** is a value that doesn't change, typically a number. For example, in the expression $x + 6$, x is the variable and 6 is the constant. **Like terms** are terms that can be combined. Simplify algebraic expressions by combining like terms.

The key to solving an equation is to do the same thing to both sides of the equation until you have the variable by itself on one side of the equation and all of the numbers on the other side.

Use **inverse operations** to move terms from the side of the equation containing the variable to the other side. Inverse operations are arithmetic operations that are used to cancel or "undo" each other:

- Addition and subtraction cancel each other.
- Multiplication and division cancel each other.

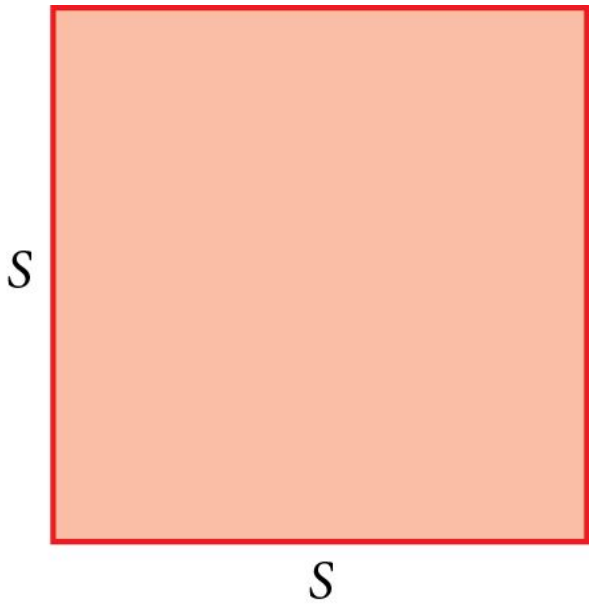
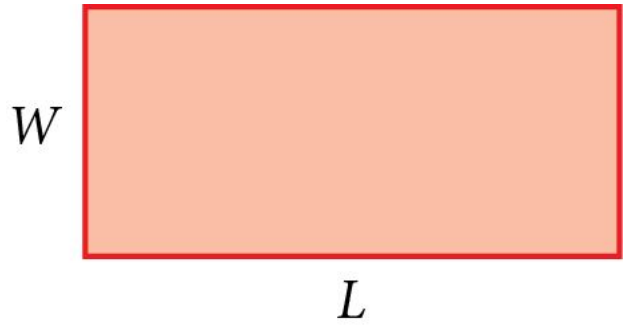
Here's an example of how an expert combines like terms to simplify an expression.

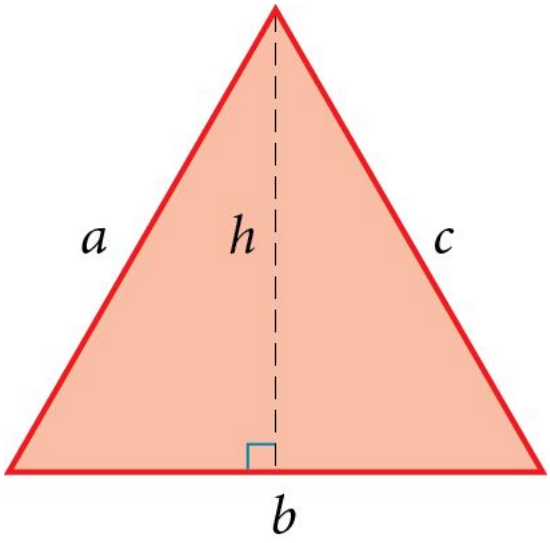
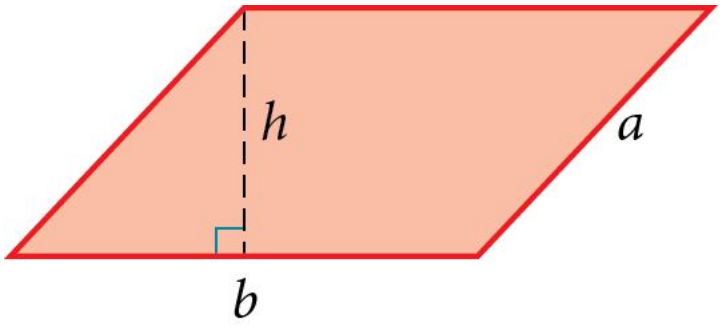
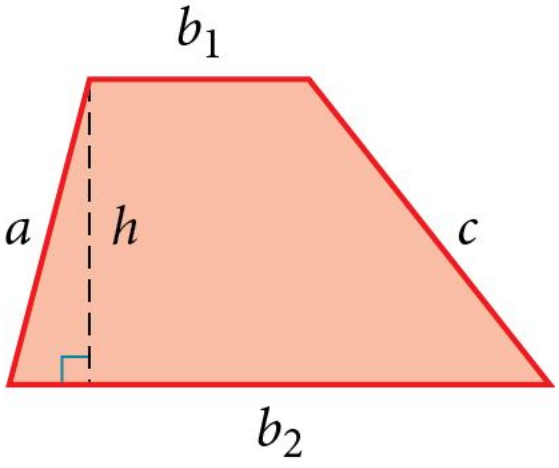
Question	Analysis
$y + 7 + 3y + 10$ Which of the following is equivalent to the above expression?	The question gives you an expression containing like terms, constant terms, and terms with the variable y . It asks you to find the equivalent value among the answer choices, which also contain constant terms and terms with y .
	Simplify by combining like terms. First, combine y and $3y$: $y + 3y = 4y$. Next, combine 7 and 10: $7 + 10 = 17$. Then, add the unlike terms: $4y + 17$.
(A) $4y + 3$ (B) $2y + 7$ (C) $3y + 70$ (D) $4y + 17$	The correct answer is choice **(D)** .

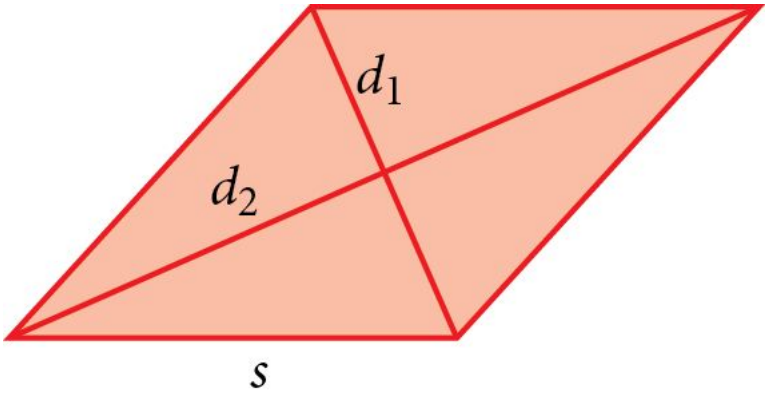
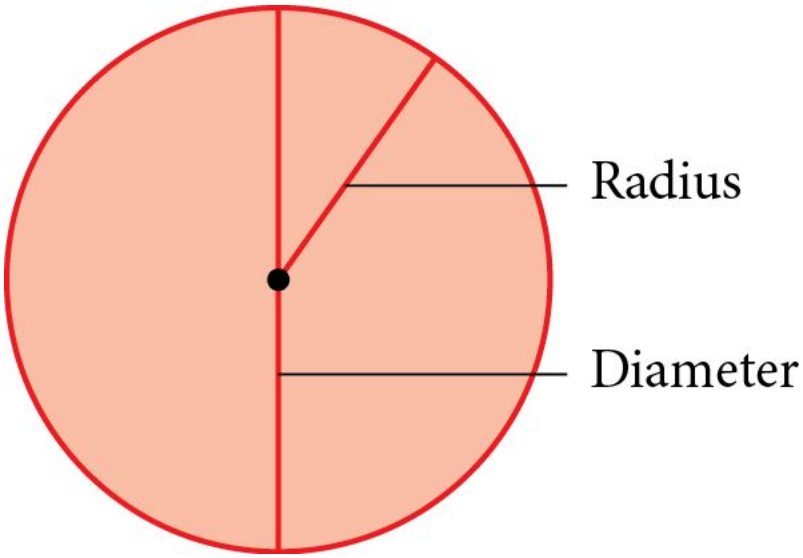
Numerical information is sometimes depicted in a graph or table. Presenting data in this manner makes it easier to see patterns in the data and to interpret relationships within the data. A **table** organizes and displays values in columns and rows. A **graph** is a diagram that represents interrelations among two or more things.

GEOMETRY

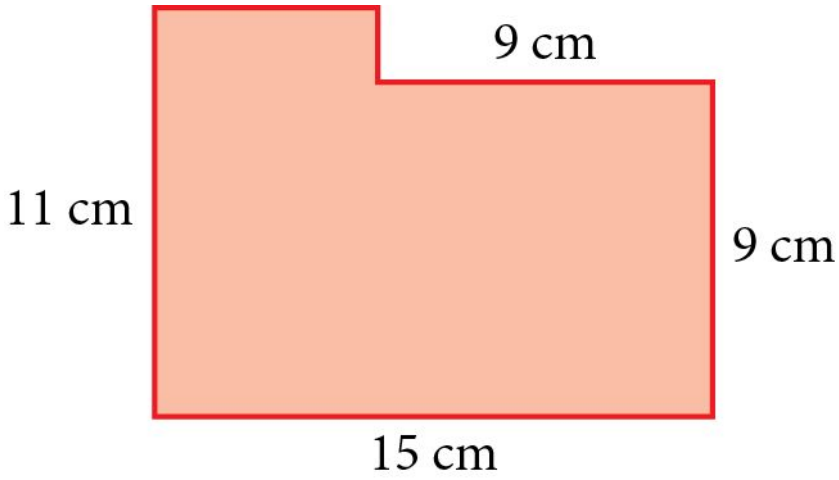
Perimeter is the distance around the outside of a two-dimensional shape. For example, the perimeter of a square is the length of all four sides added together. The perimeter of a circle is the distance once around the circle and is called the **circumference** . **Area** is a measure of the surface space taken up by a two-dimensional shape, such as a rectangle, triangle, or circle.

Shape		Formula
Square		Perimeter = $4 \times s$ Area = $s \times s = s^2$
Rectangle		Perimeter = (2 × Width) + (2 × Area = Length × Width

Shape		Formula
Triangle		Perimeter = $a + b + c$ $\text{Area} = \frac{1}{2}(b \times h)$
Parallelogram		Perimeter = $2a + 2b$ Area = $b \times h$
Trapezoid		Perimeter = $a + b_1 + b_2 + c$ Area = $\frac{1}{2}(b_1 + b_2) \times h$

Shape		Formula
Rhombus		Perimeter = 4 × s Length of diagonals = d_1, d_2 Area = $\frac{1}{2}\left(d_1 \times d_2\right)$
Circle		Radius = r = distance from cen outer edge Diameter = d = distance across through the center $\text{Circumference} = 2\pi r$ $\text{Area} = \pi r^2$ π = pi = approximately 3.14

Take a look at how a test expert handles this question involving geometry.



Question	Analysis
Which of the following is the perimeter of the figure above? (All angles in the figure are right angles.)	The question provides a figure with four lengths specified and two lengths unspecified, and it asks for the perimeter of the figure.
	Use the known dimensions to calculate the unknown dimensions. To calculate the missing top dimension, subtract the known top dimension of 9 cm from the bottom dimension of 15 cm to yield 6 cm. To calculate the missing right dimension, subtract the known right dimension of 9 cm from the left dimension of 11 cm to yield 2 cm. Next, add all lengths to find the perimeter: 11 cm + 15 cm + 6 cm + 2 cm + 9 cm + 9 cm = 52 cm.
(A) 44 cm (B) 46 cm (C) 50 cm (D) 52 cm	The correct answer is **(D)** .

Mathematics Practice Questions

These are examples of the types of questions you will see on the TEAS. Visit **http://kaptest.com/teasqbank** to learn about Kaplan's **ATI TEAS® Qbank** , with more than 500 test-like questions.

1. What is the decimal equivalent of 4.5%?

(A) 0.0045
(B) 0.045
(C) 0.45
(D) 4.5

2. $4y + 36 = 128$

Solve for y in the equation above. Which of the following is correct?

(A) 23
(B) 41
(C) 92
(D) 164

3. The children at a nursery school are painting eggs for a holiday party. They paint a total of 30 eggs. They paint 5 of the eggs blue, 5 of the eggs yellow, 5 of the eggs pink, and the remaining eggs green. What fraction of the eggs are painted green?

(A) $\frac{1}{15}$

(B) $\frac{1}{6}$

(C) $\frac{1}{2}$

(D) $\frac{11}{15}$

4. $\frac{7}{8} + \frac{5}{6} + \frac{3}{4}$

Simplify the expression above.

(A) $\frac{5}{8}$

(B) $\frac{5}{6}$

(C) $2\frac{5}{12}$

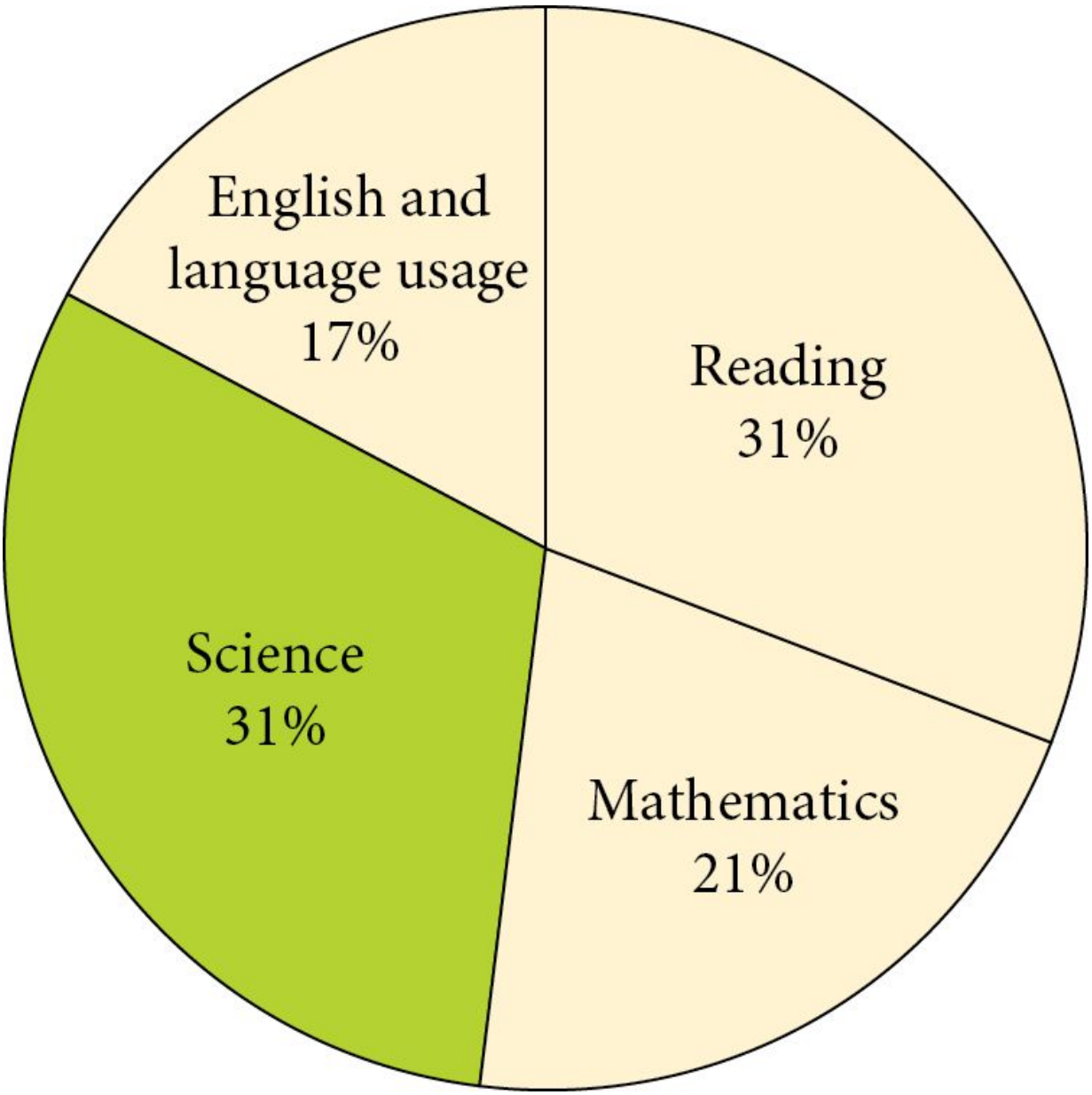
(D) $2\frac{11}{24}$

5. Jan is a pet sitter who wants to build a kennel and a dog run in her yard. The kennel will be a square enclosure of 9 feet on a side, and the dog run will be a rectangular enclosure of 6 feet wide by 20 feet long. If she wants to completely fence each enclosure, what is the total length of fencing Jan will need?

(A) 68 feet
(B) 88 feet
(C) 92 feet
(D) 104 feet

Science

Nursing and health science program students need to understand the human body and other scientific subjects. In your career, you will apply scientific knowledge frequently, and you will need to keep up-to-date on the latest published research to provide your clients with the best possible care. The TEAS *Science* content area tests your understanding of the parts and functions of each organ system of the human body, and it asks questions about biology and chemistry. The TEAS also tests your ability to use scientific measurements and tools and to evaluate scientific research.



Questions by Content Area

THE TEAS SCIENCE CONTENT AREA

Of the 170 items on the TEAS, 53 will be in the *Science* content area, and you will have 63 minutes to answer them, or just over a minute per question.

Of the 53 *Science* questions, 47 will be scored and 6 will be unscored. You won't know which questions are unscored, so do your best on every question.

Kaplan's ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** includes a full glossary that includes all terms that appear in **bold** , as well as chapters covering the areas of *Science* the TEAS tests most:

- Chapter 1: Human Anatomy and Physiology
  - Lesson 1: Human Anatomy and Physiology: An Overview
  - Lesson 2: The Skeletal System
  - Lesson 3: The Neuromuscular System
  - Lesson 4: The Cardiovascular System
  - Lesson 5: The Respiratory System
  - Lesson 6: The Gastrointestinal System
  - Lesson 7: The Genitourinary System
  - Lesson 8: The Endocrine System
  - Lesson 9: The Reproductive System
  - Lesson 10: The Immune System
  - Lesson 11: The Integumentary System

- Chapter 2: Biology and Chemistry
  - Lesson 1: Macromolecules: Carbohydrates, Proteins, and Lipids
  - Lesson 2: Heredity
  - Lesson 3: Atoms and the Periodic Table
  - Lesson 4: Properties of Substances
  - Lesson 5: States of Matter
  - Lesson 6: Chemical Reactions

- Chapter 3: Scientific Procedures and Reasoning

- Lesson 1: Scientific Measurements and Relationships
- Lesson 2: Designing and Evaluating an Experiment

HUMAN ANATOMY AND PHYSIOLOGY

Human cells are **eukaryotic** , meaning that they have a nucleus and membrane-bound **organelles** and are surrounded by a semipermeable **plasma membrane** . This membrane controls the movement of solutes into and out of the cell. The **nucleus** houses the cell's DNA and is surrounded by a double membrane. It is the site of DNA replication and RNA transcription.

Cells working together to perform a specific function form a **tissue** . An **o rgan** is a structure composed of multiple tissue types working together to perform a specific function; for example, the lungs oxygenate blood, and the kidneys filter blood. Organs can be further grouped together into **organ systems** , in which multiple organs work together to perform a larger function. There are 11 main organ systems in the body: respiratory, digestive, immune, endocrine, circulatory, urinary, reproductive, muscular, nervous, integumentary, and skeletal systems.

Anatomical planes divide the body into distinct halves. There are three main anatomic planes.

Plane	Description
coronal plane	Runs vertically and separates the body into front and back halves.

Plane	Description
sagittal plane	Runs vertically and separates the body into left and right halves. Note that the left-right division is in relation to the body, not the view looking at the body from the front. In other words, your right hand is on the right side of your body.
transverse plane	Runs horizontally and divides the body into top and bottom halves; also called the *axial plane* or *horizontal plane* .

Directional terminology is used to describe the locations of different parts of the human body. Common terms include those in the table.

Term	Definition
superior	The top half of the body along the transverse plane
inferior	The bottom half of the body along the transverse plane
anterior/ventral	The front part of the body along the coronal plane
posterior/dorsal	The back part of the body along the coronal plane
medial	Toward the midline of the body along the sagittal plane
lateral	Away from the midline of the body along the sagittal plane
proximal	Toward the post of origin
distal	Away from the point of origin

BIOLOGY

Living organisms are made up of four classes of organic **macromolecules** : carbohydrates, lipids, proteins, and nucleic acids. The large molecules are

composed of smaller molecules, or **monomers** , that serve as building blocks. Multiple monomers joined together are called **polymers** .

Carbohydrates are formed of carbon, hydrogen, and oxygen and play four important roles: providing energy for cells, short-term energy storage, structural support, and cellular communication.

Proteins are found in nearly all tissues and cells. Protein monomers are called **amino acids** . These contain an amino group (NH_3^+), a carboxyl group (COO^-), hydrogen (H), and a side chain (R group). There are 20 different amino acids, each with different chemical properties due to differences in their R group.

Lipids , also commonly called fats, contain long strands of hydrogen (H) and carbon (C) atoms called **hydrocarbon chains** . These chains are **hydrophobic** , meaning they do not dissolve in water, and vary in length. If a hydrocarbon chain ends in a carboxyl group, it is called a **fatty acid** .

Nucleic acids supply the genetic material for all living cells. The monomer for nucleic acids is called a **nucleotide** . There are two types of nucleic acids —deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)—each with its own type of nucleotide.

CHEMISTRY

An **element** is a pure type of matter that cannot be separated into different types of matter by ordinary chemical means. An **atom** is the smallest

component of an element that retains the properties of that element. A **molecule** is a group of two or more atoms bonded together.

Atoms are composed of a central **nucleus** and an orbital "cloud" that surrounds the nucleus. **Neutrons** are particles in the nucleus that have no electric charge. **Protons** are positively charged particles in the nucleus. **Electrons** have a negative electric charge. Neutrons and protons have approximately the same mass; the mass of electrons is negligible. Electrons orbit around the nucleus of an atom, and the opposite charges between protons and electrons create an attraction that serves to keep the electrons in the orbital cloud.

The number of protons in the nucleus defines an element. Although there is a typical number of neutrons for each element, the number of neutrons in an atom of some elements can vary; these variations in the number of neutrons are termed **isotopes** of the element. Because the numbers of elections and protons remain the same, the different isotopes of an atom have essentially the same properties.

The positive charge of a proton is the same magnitude as the negative charge of an electron, so an atom that contains the same number of each is a **neutral atom.** Atoms that are not electrically balanced because they have either lost or gained electrons are called **ions** . If electrons have been lost, then the ion has a positive charge and is known as a **cation** . If there are extra electrons, then the ion is negatively charged and is an **anion** . For instance, if Mg (magnesium), which has an atomic number of 12, gives up 2 electrons so that its ion has 12 protons and 10 electrons, that ion would now have a +2 charge.

Here's how an expert would approach a question on this relationship.

Question	Analysis
Which of the atoms described below is an anion?	The question asks which of the answer choices describes an anion.
	Recall that an anion is negatively charged because it has more electrons than protons.
	Whichever answer choice has more electrons than protons will be correct.
(A) An atom with 9 protons, 10 neutrons, and 10 electrons	Answer choice **(A)** describes an atom with 10 electrons and 9 protons. This matches the prediction and is correct.
(B) An atom with 9 protons, 10 neutrons, and 9 electrons	This atom is balanced, having 9 of each, so it is a neutral atom.
(C) An atom with 9 protons, 11 neutrons, and 9 electrons	Compared to choice (B), the number of neutrons increases from 10 to 11, but the protons and electrons remain balanced, so this is an isotope of the atom in (B).
(D) An atom with 11 protons, 12 neutrons, and 10 electrons	The protons (11) outnumber the electrons (10), so this is a cation.

Physical matter that has uniform properties is called a **substance** . A **mixture** is matter that is composed of more than one substance. The TEAS tests specific properties of substances that you should know. Water in particular has unique properties and is extremely important to human physiology.

Since substances are matter, they have **physical properties** that can be readily observed, such as color, shape, and texture. Other physical properties, such as hardness or tensile strength, can be measured. Physical properties can be evaluated without involving the substance in a chemical reaction.

Some physical properties depend upon the amount of matter being measured; these are called **extensive properties** . Common extensive properties are mass and volume. Physical properties that do *not* depend upon the amount of a substance are categorized as **intensive properties** . One of the most common intensive properties is **density** . Density is defined as $\frac{\text{mass}}{\text{volume}}$.

Substances also have **chemical properties** that affect how they interact with other materials. Chemical properties are greatly affected by the valence electron configuration. These properties can only be observed in the context of chemical reactions, which result in a change from one substance into a different one. For instance, when iron rusts, it combines with oxygen and becomes a new substance, iron oxide.

When one substance is dissolved into another, the result is a **solution** . Unlike a mixture, a solution has consistent properties. The substance into which another is dissolved is called the **solvent** ; the substance that is being dissolved is the **solute** .

In chemistry, **diffusion** is the tendency of substances to move from areas of higher concentration of solute to areas of lower concentration. As a result, substances in solutions will eventually become evenly distributed. The process of diffusion can occur across thin, semipermeable membranes because individual molecules are small enough to pass through.

Science Practice Questions

These are examples of the types of questions you will see on the TEAS. Visit **http://kaptest.com/teasqbank** to learn about Kaplan's **ATI TEAS® Qbank** , with more than 500 test-like questions.

1. A person complains of sciatica, pain that shoots from the lower back through the hips and legs. What is the most likely cause?

   (A) Herniated lumbar disc
   (B) Fractured coccyx
   (C) Bruised calf muscle
   (D) Myocardial infarction

2. Which of the following correctly identifies the location of the sternum on the body?

   (A) Superior and ventral
   (B) Superior and dorsal
   (C) Inferior and ventral
   (D) Inferior and dorsal

3. Which of the following is NOT composed of macromolecules?

(A) Carbohydrate
(B) Nucleic acid
(C) Lipid
(D) Gastric acid

4. Which of the following physical properties changes when volume changes, but mass is held constant?

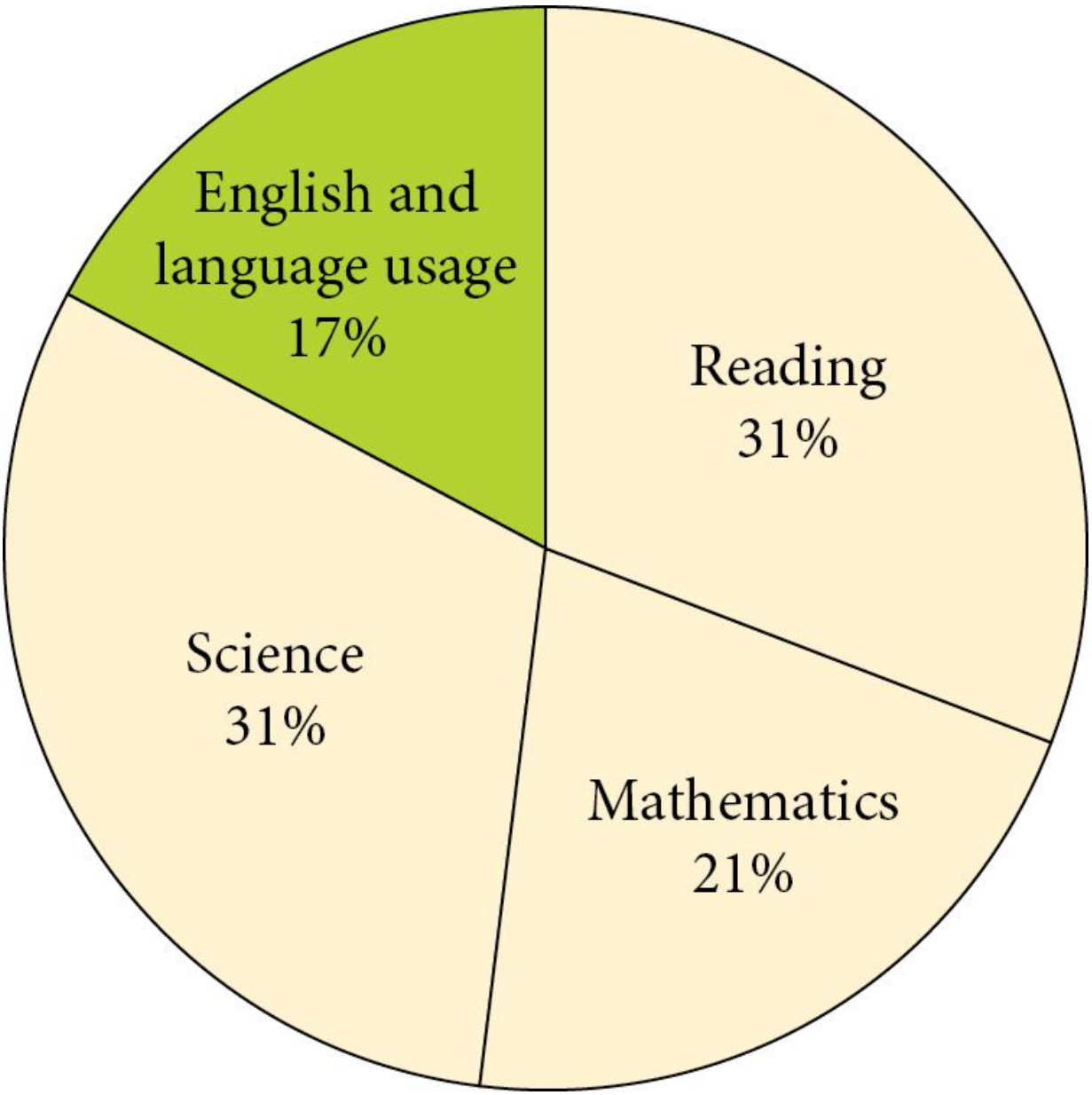
(A) Electronegativity
(B) Density
(C) Atomic radius
(D) First ionization energy

5. Which of the following are responsible for transmitting a motor impulse across the neuromuscular junction?

(A) Calcium ions
(B) Nodes of Ranvier
(C) Neurotransmitters
(D) Action potentials

English and Language Usage

As a nursing or health science student and then as a healthcare professional, you will be expected to express yourself clearly and correctly in writing. This skill will be important to your ability to communicate with clients and colleagues. The TEAS *English and language usage* content area tests your ability to use correct spelling, punctuation, and grammar; construct sentences and paragraphs to convey meaning clearly; and use appropriate vocabulary and style to communicate to a given audience.



Questions by Content Area

THE TEAS ENGLISH AND LANGUAGE USAGE CONTENT AREA

Of the 170 items on the TEAS, 28 will be in the *English and language usage* content area, and you will have 28 minutes to answer them. This means you

will have an average of 1 minute per question.

In the *English and language usage* section, 24 of the 28 questions will be scored, and 4 will be unscored. You won't know which questions are unscored, so do your best on every question.

Kaplan's ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests*** includes a full glossary that includes all terms that appear in **bold** , as well as chapters covering the areas of *English and language usage* the TEAS tests most:

- Chapter 1: Spelling, Punctuation, and Sentence Structure
  - Lesson 1: Spelling
  - Lesson 2: Punctuation
  - Lesson 3: Sentence Structure

- Chapter 2: Grammar, Style, and the Writing Process
  - Lesson 1: Grammar
  - Lesson 2: Formal and Informal Style
  - Lesson 3: The Writing Process

- Chapter 3: Vocabulary
  - Lesson 1: Using the Correct Word

COMMON SPELLING RULES

You may recall learning the rhyme "*i* before *e* , except after *c* ," when you were a child. But you may not have learned that there is an easy way to

remember additional exceptions to the “*i* before *e* ” rule: if it sounds like a long *a* (as in *neighbor* or *weigh*), use *e* before *i* .

i before *e*	"After *c* " and "sounds like *a* " exceptions	Other exceptions
believe	ceiling	caffeine
chief	eight	neither
friend	receipt	protein
relief	vein	science
thief	weigh	weird

Many spelling errors occur when **suffixes** are added to words incorrectly. It is important to understand the rules and guidelines that dictate whether the endings of a **root word** should change when merged with a suffix; these are the Root Ends and Beginnings of Suffixes (REBS) rules. You may already know some of the REBS rules, but you should memorize any you do not recognize. You should also memorize the most common exceptions to these rules.

These rules and common exceptions are included in Kaplan’s ***ATI TEAS® Strategies, Practice & Review with 2 Practice Tests .***

PARTS OF SENTENCES

Knowing sentence parts will help you analyze sentence structures that are tested on the TEAS.

Part of Sentence	Definition
subject	the person or thing that is performing the action or being described
object	a person or thing that receives the action of the verb
indirect object	a person or thing to whom/which or for whom/which something is done
predicate	the part of a sentence that expresses what a subject does
complement	a word or group of words added to a sentence to make it complete
article	a word (such as *a* , *an* , or *the*) used with a noun to limit it or make it clearer
modifier	a word (such as an adjective or adverb) or phrase that describes another word or group of words

CLARITY

Clarity refers to how clear, or understandable, a text is. Precise, concise language and correct sentence structure present information clearly; vague language, wordiness, and incorrect sentence structure impede clarity and make a text difficult to understand.

Sentence Fragments

A simple sentence has at least one subject and verb and expresses a complete thought. A **sentence fragment** is a combination of words that lacks one or more of these characteristics. Sentence fragments are sometimes called incomplete sentences.

Sentence fragments are often used to provide emphasis when speaking, but they are never correct in written English.

Run-on Sentences

When two or more independent clauses are incorrectly joined, they form a **run-on sentence** . You can correct a run-on by splitting it into separate sentences or by using punctuation and a conjunction to create a compound or complex sentence.

Ambiguity

Ambiguity refers to uncertainty of meaning, or a lack of clarity. Ambiguous language is vague and clouds the meaning of a text. To avoid or correct ambiguity, select precise words that paint a clear picture of your intended meaning.

Agreement

Agreement refers to the appropriate match between a noun and a verb or between a pronoun and its **antecedent** (the noun it represents). A singular noun requires a singular verb and, if paired with a pronoun, requires a singular pronoun. Plural nouns must be paired with plural verbs and/or pronouns.

Here is how a TEAS expert would tackle a question about clarity.

Question	Analysis

Question	Analysis
Whether you decide to stay or go. Which of the following describes the error above and provides an appropriate correction?	This is a sentence fragment; it does not have a subject/verb pair and does not convey a complete thought.
	The correct answer will identify that the error is a fragment, and the correction will present a complete sentence.
(A) Run-on sentence; It makes no difference whether you decide to stay or go.	Incorrect. The error is a sentence fragment, not a run-on sentence.
(B) Run-on sentence; Whether you decide to stay or go, I will support you.	Incorrect. The error is a sentence fragment, not a run-on sentence.
(C) Sentence fragment; Whether you decide to stay or go, I will support you.	Correct. This matches the prediction.
(D) Sentence fragment; Whether you decide on staying or going.	Incorrect. This correctly identifies the error, but the proposed correction remains a sentence fragment.

English Practice Questions

These are examples of the types of questions you will see on the TEAS. Visit **http://kaptest.com/teasqbank** to learn about Kaplan's **ATI TEAS® Qbank** , with more than 500 test-like questions.

1. The famous producers _____ planning to release an exciting new film this upcoming fall.

   Which of the following correctly completes the sentence above?

   (A) are
   (B) is
   (C) will
   (D) be

2. _____ she had left the water running, the sink overflowed onto the floor and into the hallway.

   Which word correctly completes the sentence?

(A) However
(B) Although
(C) Because
(D) Unless

3. Which of the following words is spelled incorrectly?

(A) Reliable
(B) Enjoyable
(C) Complyant
(D) Denial

4. He told me a very long and boring story.

Which of the following is the direct object in the sentence above?

(A) He
(B) me
(C) boring
(D) story

5. Which of the following sentences is an example of incorrect subject-verb agreement?

(A) Jolie and Daniel went to the movies after dinner.

(B) Everyone who lost points on the test have to stay after class.

(C) The boy with the extra sandwiches is going to share with the girl who forgot her lunch.

(D) The cheerleaders holding the banner are leading the crowd in a cheer.

Reading: Answers and Explanations

1. **(C) wipe off and replace the drain plug.**
   According to the passage, "[w]hen the oil is drained fully," you should next wipe off the drain plug and the plug opening and replace the plug. Choice **(C)** is a match for this step in the sequence.

2. **(B) Appreciative**
   The author notes that some people have negative feelings toward snakes, but uses the key phrase “on the contrary” to introduce some positive attributes snakes possess. Thus, predict a positive word and choose "Appreciative." The author is not disgusted, (A); that would be more appropriate to describe those with whom he disagrees. Considering the author’s appreciation for snakes, it would be incorrect to say he was (C), uninterested, in them. There is no reason to believe that the author is fearful, (D).

3. **(C) Its quality of construction and luxuriousness of materials**
   Worth is described as the “inventor of haute couture,” and this is described as establishing new standards for the construction and luxury of clothing. Choice (B) is a detail about the particular customers Worth served, not the clothing he designed. Choice (A) relates to a quality that would not be expected of haute couture; this contrast is signaled by the key word “[d]espite.” Nothing in the passage connects choice (D) with haute

couture; this is a description of the way the designer ran his business, not his clothing.

4. **(B) Many fashion designers today seek to be well-known among people who cannot afford their clothes.**
   The author's conclusion, signaled by the key word "[t]hus," is that today's fashion industry has been shaped in part by Worth's passion for self-promotion, which was so great that even women who could not afford his clothes knew who he was. To strengthen the argument, therefore, look for an answer choice that provides further evidence that modern fashion designers are famous beyond their customer base. Choice **(B)** matches this prediction. Choice (A) only reinforces that Worth was important to the history of fashion, not that he had an impact on the contemporary fashion world. Choice (C) is about the lasting impact of his clothing designs, but the author's argument is about the lasting impact of his business model. Whether Worth made money, choice (D), is beside the point, because the author's conclusion is about "superstar" designers—that is, very famous designers, not necessarily rich ones.

5. **(A) January.**
   The letter writer notes that she lives in the Rocky Mountains and there is currently snow on the ground. Because this is a response to a birthday card, you can conclude that the writer's birthday has occurred recently, and because she lives in the Rocky Mountains, she is in the Northern Hemisphere. Therefore, her birthday occurs during the winter. Of the choices, only January is a winter month.

Mathematics: Answers and Explanations

1. **(B) 0.045**

   This question asks you to convert a percent to a decimal. You may have memorized the very useful shortcut "Move the decimal two places to the left and drop the % sign." This will efficiently produce the correct answer to this straightforward question. However, be sure to understand the process as well. Convert the percentage to a fraction by placing the expression over 100, and then change the fraction to a decimal by using place value: $4.5\% = \frac{4.5}{100} = \frac{4.5(10)}{100(10)} = \frac{45}{1000} = 0.045$.

2. **(A) 23**

   The question provides an equation with a variable on one side and a value on the other, and it requires you to isolate the variable. Use inverse operations to isolate y. First, subtract 36 from both sides to yield $4y = 92$. Next, divide both sides by 4 to yield $y = 23$.

3. **(C)** $\frac{1}{2}$

   The question provides the total number of eggs and the number of eggs painted each color other than green, and it asks for the fraction of eggs that are painted green. Begin by determining the number of eggs that are painted a color other than green: 5 blue + 5 yellow + 5 pink = 15 eggs that are not green. Subtract this number from the total number of eggs to

calculate the number that are green: 30 total eggs – 15 eggs that are not green = 15 green eggs. Thus, the fraction of green eggs to total eggs is $\frac{15}{30}$. Because this fraction does not appear among the answer choices, simplify: $\frac{15}{30} = \frac{1}{2}$.

4. **(D)** $2\frac{11}{24}$

   To add fractions with different denominators, you first need a to find common denominator. The least common denominator (LCD) of these fractions is 24. Using 24 as the denominator, rewrite each fraction: $\frac{7}{8}+\frac{5}{6}+\frac{3}{4}=\frac{7\times3}{8\times3}+\frac{5\times4}{6\times4}+\frac{3\times6}{4\times6}=\frac{21}{24}+\frac{20}{24}+\frac{18}{24}$. Add the numerators of the fractions: $\frac{21+20+18}{24}=\frac{59}{24}$. Simplify the fraction: $2\frac{11}{24}$.

5. **(B) 88 feet**

   The question provides the shapes and dimensions of two enclosures and asks for the total length of fencing needed to enclose each completely. To calculate the total length of fencing needed, calculate the perimeter of each of the enclosures separately and then combine the two values. The perimeter of a square is four times the side length, so the kennel's perimeter is 4 × 9 feet = 36 feet. The perimeter of a rectangle is two times length plus two times width, so the dog run is (2 × 20 feet) + (2 × 6 feet) = 52 feet. Add the two perimeters: 36 feet + 52 feet = 88 feet.

Science: Answers and Explanations

1. **(A) Herniated lumbar disc**

   This question tests your ability to infer a logical cause-and-effect relationship. The term "sciatica" refers to the sciatic nerve, which is the largest single nerve in the human body and branches from the lower spine into the buttocks and legs. If you did not recall the anatomy of the sciatic nerve, because the symptom is pain "that shoots from the lower back through the hips and legs," you could infer the problem likely relates to a spinal nerve. The most likely cause of the symptoms would be a problem in the upper lumbar or lower thoracic discs, so choice **(A)** is correct. The coccyx (tailbone) is at the lowest end of the spine and is not the site of any spinal nerves, so damage there is not likely to cause the noted symptoms; eliminate (B). A bruised calf muscle would cause pain in the lower leg only, so (C) is incorrect. A myocardial infarction, or heart attack, would not produce pain in the lower body, so eliminate (D).

2. **(A) Superior and ventral**

   This question is asking where the sternum is located in relation to the coronal and transverse planes. Recall that the sternum is located in the top half of the body in the front, so it is on the superior side of the transverse plane and on the ventral side of the coronal plane.

3. **(D) Gastric acid**

The four most common macromolecules in biology are carbohydrates, lipids, proteins, and nucleic acids, so the correct answer will be a substance that is not one of these. Gastric acid is composed of three simple compounds (HCl, KCl, and NaCl), none of which are macromolecules, so choice **(D)** is correct. The other choices are all macromolecular substances.

4. **(B) Density**

   Density is defined as mass over volume, so if mass is held constant and volume is changed, the density will also change. It gets larger when the volume is decreased and smaller when the volume is increased.

5. **(C) Neurotransmitters**

   The question is asking what occurs at the synapse between a motor neuron and muscle fiber. Neurotransmitters, such as acetylcholine, are released from the motor neuron and transmit the motor impulse to the muscles. Choice **(C)** is correct. After the neurotransmitters bind to the muscle fibers, calcium ions, (A), are released. The nodes of Ranvier, (B), are gaps in the axon’s myelin sheath, and action potentials, (D), propel the motor impulse along the neuron.

English and Language Usage: Answers and Explanations

1. **(A) are**

   The subject of the sentence is the plural noun "producers." The missing word is part of the verb, which must agree in number with the subject. Choice (B) is incorrect because it is singular. Choice (C), "will," might be tempting because the new film will be released in the future. However, "will planning" is not the correct form of the future tense for an ongoing action; "will be planning" would be needed. Choice (A) correctly uses the plural "are," and it places the planning for the future release of the film in the present, a logical order of events.

2. **(C) Because**

   The missing word introduces a subordinate or dependent clause and must express the cause-and-effect relationship between the act of leaving the water on and the overflowing of the sink. Only choice **(C)** properly expresses the relationship between the dependent clause and the independent clause.

3. **(C) Complyant**

   Each of these words involves a spelling rule that frequently causes trouble. The root word of choice (B), *enjoy* , correctly follows the rule for adding a suffix to a word that ends in *-oy* . Choices (A), (C), and (D) have root

words that end in *y* preceded by a consonant (*rely* , *comply* , *deny*). Only **(C)** fails to follow the rule for adding a suffix beginning with a vowel, which is to change the *y* to *i* .

4. **(D) story**
   The direct object is a person or thing that receives the action of the verb. The *story* (the direct object) is being told to *me* (the indirect object).

5. **(B) Everyone who lost points on the test have to stay after class.**
   Analyze each sentence for subject–verb agreement; a singular subject requires a singular verb, and a plural subject requires a plural verb. You are looking for the *incorrect* example. In choice (A), the past tense verb "went" can be paired with either a singular or a plural subject, so this sentence is correct as written. The subject of the sentence in choice (C) is "boy," which correctly agrees with the singular verb "is going." In choice (D), the plural subject "cheerleaders" agrees with the plural verb "are leading." The subject of the sentence in choice **(B)** is the singular pronoun "everyone," which does not agree in number with the plural verb "have."