



written exam study guide

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Purpose of this Study Guide

This guide was developed to assist you in doing your best on the Firefighter Examination. It contains general test-taking advice and tips for preparing yourself to take the examination. In addition, it includes detailed descriptions, sample questions, and strategies for improving your performance in each of the five parts of the examination.

At the end of the study guide there is a Sample Examination that contains additional sample questions. It contains the same instructions and layout as the Firefighter Examination. While much of the information contained in this guide may be applied to other written tests, it was specifically produced to provide guidance for this particular examination.

Getting Ready the Day of the Examination

- Stick to your normal routine, as much as possible. Some of the following suggestions may not be in your normal routine, but they usually allow most persons to perform at their best.
- Get adequate sleep. Most adults do best with 7 to 8 hours. Try to adopt this pattern at least several days before the examination.
- Get up early enough to have plenty of time to get ready and get to the examination. Hurrying creates anxiety, so don't put yourself in the position of having to hurry.
- Include a light, balanced breakfast in your preparation schedule.
- Arrive at the test early enough to cope with traffic, weather, parking, etc.

Preparing for the Examination

Tests are given to ensure selection of the most qualified persons while providing all candidates a chance to compete fairly. Knowing about the topics and kinds of questions that will be in the test can improve your chance to demonstrate your job potential. You will not be surprised by the content of the test or the manner in which it is administered. In addition, this knowledge allows you to prepare for the examination by practicing the basic skills and studying the knowledge areas that will be covered by the test.

This examination has FIVE COMPONENTS and is designed to measure:

- your ability to **listen** to and **understand** complex spoken instructions
- how well you **observe** things and how well you **remember** what you have observed
- your ability to **read with understanding**
- your ability to understand and apply **basic mechanical principles**
- your **basic computational ability**



So in the days and weeks before the examination, these suggestions can be offered:

- Make sure you understand each step in the process and show your very best at each stage.
- Make sure that you accurately complete any forms or requirements prior to the examination.
- Try to take some time every day to improve your listening, observation, reading, mechanical reasoning, and computational skills. These skills are important for effective performance as a firefighter and will be assessed by the examination. Follow the specific advice for improving these skills that is included in later sections of this guide.
- Try to get some practice taking other tests. Answer the questions in any text books that you use to prepare for this examination. Obtain books on how to take civil service tests. These kinds of publications always contain sample tests that you can use to practice basic test taking skills. This can reduce testing anxiety and improve your test taking strategies.
- **Ensure that you know the exact location of the examination site and the best way to get there.** A “dry run” is recommended. Do this on the same day of the week as the exam and approximately the same time of day. Then you will have a good estimate of how long it takes to get there and can check out parking, if you will be driving.

Taking the Examination Effectively

- Listen to instructions and directions from the test administrator. Make sure that you understand the instructions. Ask questions at the designated time before the test begins if you are unsure of any aspect of what you should do during the examination.
- Use your time carefully. The first two parts of the examination have special timing that is totally controlled by the test administrator. After those parts have been completed, you will have 2½ hours to finish the rest of the test. This time limit is more than enough time for you to finish if you move through it steadily and do not spend too much time on any one question.
- Read the questions and answer choices carefully. Read all of the answer choices before you select an answer. In later sections, find and follow recommended approaches for reading some of the specific kinds of questions in the examination.
- As you read through the answer choices, put a line through the letter designation of any choice that you know is incorrect. Then, after reading all choices, you only have to reconsider the ones that you did not cross out the first time.
- Answer every question. There is no penalty for wrong answers. Scores are based on the number of correct answers. Use your best judgment to make a choice among the answer choices provided.



- As a general rule, skip over questions that give you difficulties. Circle the question number in your test booklet and return to it after you have finished the test. However, later in this guide you will see that candidates are not allowed to go back to the questions in the first two sections of the examination. So answer those questions to the best of your ability when the opportunity is available.
- Don't worry about trick questions. None of the questions in the examination is designed to be a trick question. The test is really intended to allow you to show your best on what it is measuring. Avoid reading too much into a question.
- Take care of your answer sheet. Follow the test administrator's instructions on filling in identifying information. Make sure that you fill in the bubbles, not making too light or small a mark—or one that goes out of the bubble. Make sure that the number of the space on the answer sheet you mark is the same as the number of the question you are answering.
- Do not make stray marks or smudges on the answer sheet. If you change an answer, make sure that you completely erase your first choice before you mark your new choice.



SECTION 1: FOLLOWING ORAL INSTRUCTIONS

The first section of the exam is designed to determine how well you listen to and understand complex spoken instructions. This ability is important for a firefighter to be successful during training and to be effective in following spoken orders, instructions, and warnings given at an emergency scene. In order to assess your listening skills, this test section makes use of an audio recording.

There are thirty (30) questions in the “Following Oral Instructions” section of the Firefighter Examination. Each question will only be asked once. After each question, there will be a silent pause in the recording that gives you time to mark your answer sheet.

The examination administrator will begin this first part of the Firefighter Examination by playing the audio recording. The instructions, some sample questions, and the actual test questions are all presented orally by the recording. The examination booklet does not contain the questions. Instead, each page shows a box with rows of letters, numbers, or symbols in it. The orally presented questions ask about the contents of the box. For each question, the booklet shows answer choices from which to identify and select the correct answer.

An Example

In Example 1, below, “Box A” would appear at the top of the booklet page. Below the box, the answer choices for the first question are also shown, just as they would appear in the examination. A typical spoken question about Box A might be:

“Question Number 1. In Box A, which letter is directly above the number that follows the second underlined number?”

In Box A, the number that follows the second underlined number is the number “12”. The letter that is directly above the number “12” is the letter “Q”. Therefore, the correct answer is “Q”.

Now look below Box A at the answer choices for question number 1. The correct answer, “Q”, is the choice marked “B” in the test booklet. You would fill in the space marked “B” on your answer sheet for question number 1.

The Sample Examination at the end of this study guide starts with a sample “Following Oral Instructions” section. It includes a written script that contains more examples of the kinds of questions that are asked in the Firefighter Examination. In order to obtain an accurate sense of the nature and timing of this examination task, have someone read the script to you while you look at the box and answer the questions.

Example 1

F	J	<u>W</u>	B	Q	<u>Z</u>
3	<u>7</u>	2	<u>5</u>	12	9

Box A

1.

- A. F
- B. Q
- C. B
- D. W



Strategies for Following Oral Instructions

In the testing situation, it is critical that you maintain focused concentration on the audio questions and instructions. There are specific distractions that you should be aware of and avoid:

- After you have marked your answer to a question, return your attention to the content of the box on the page. Be ready for the next question.
- Don't glance around the room to see what other test takers or the test administrators are doing.
- Don't study the answer choices for the next question. Nothing about the answer choices will assist you in answering a question until you hear the question.
- Don't study the responses that you have marked on your answer sheet, looking for a pattern. There is no pattern. You should answer each question without regard to what your previous choices have been.
- Don't try to take notes. The instructions for the "Following Oral Instructions" section indicate that note taking is not allowed. This is to protect you from engaging in this counterproductive behavior. The nature of the listening task and the timing and pace of the recording are incompatible with note taking. Note taking would be the ultimate distraction. You wouldn't be able to concentrate on what you were hearing. Your attention would be drawn away from the contents of the box which you must be looking at when a question is being asked.

Improving Your Listening Skills

Listening skills can be improved with practice. The biggest obstacle to listening and understanding what we hear comes from letting our minds wander. We allow ourselves to be distracted by other thoughts or by information from our other senses. We do not always concentrate on what we are hearing.

You can improve your listening skills by deliberately exercising your ability to focus on what you hear. Have someone read to you a short article from a newspaper or magazine. Have it read at a moderate, conversational pace. Listen carefully. Then try to write down the major points of information contained in the reading passage. When you have finished your writing, check the quality of your listening by reading the article.

When you start this improvement program, use short, easy reading passages. As you improve, move on to longer articles and more complex topics.



SECTION 2: OBSERVATION AND MEMORY SKILLS

The second section of the Firefighter Examination is designed to assess your observation and memory skills. These skills are very important for a firefighter. At a fire, they are critical for rapidly detecting and remembering such things as the details and characteristics of the structure and the visual properties of the fire. In a structure filled with dense smoke, memory of previously observed layout and exit points may save a firefighter's life.

This component of the examination is designed to determine how well you can quickly look at visual material, see the details, and recall those details after the visual material is removed from view. The Firefighter Examination booklet contains a full-page drawing. When instructed to turn to that page, you will have two (2) minutes to study it. Note taking is not allowed during the study period. When time is called, you will be directed to turn to the questions portion of the examination booklet. You will not be allowed to look back at the picture again during the remainder of the examination. The thirty (30) questions that are based on the picture ask about specific details that are contained in the drawing.

The Sample Examination at the end of this study guide has a sample "Observation and Memory Skills" section. Layout and sequencing play important roles in demonstrating the nature and feel of this examination task. Therefore, when you take the Sample Examination, be sure that you follow the instructions and carefully time your study period.

Strategies for Observation and Memory Skills

During the time provided for you to study a picture, your objective should be to create a mental image of the picture and make mental notes about the details. There are specific strategies that can improve the clarity of your mental images and notes.

Develop and practice a systematic method for studying visual material.

- Start by looking at it as a whole. Obtain a general sense of what is being shown or what is happening.
- Then scan for details using a methodical approach. Start in the upper left-hand corner and move across the page to the right, taking in several vertical inches of detail. At the right margin, lower your line of vision to the next several inches and scan back to the left. Continue this zigzag pattern until you have traversed the entire picture. In this scan, identify and name, in your mind, each item that you see. Keep a mental count if there is more than one of a significant item.
- Repeat the zigzag scan, this time with a focus on all readable items, for example, addresses, street signs, or billboards.
- Finally, look again at the visual material as a whole and concentrate on seeing how it all fits together. The details that you have mentally noted will now add considerable clarity to your mental image of the pictorial material.

Categorize Observations

Based on the nature or content of a drawing or picture, categorize the items or details that you observe. Then mentally ask and answer questions that are specific to each category. In fact, some time spent ahead of time to list potential categories



and generate related questions is time well spent. Several of the same categories are often useful for a variety of kinds of visual materials.

Let's look at an example. The drawing that appears in the sample "Observation and Memory Skills" section in the Sample Examination shows a retail street scene. Upon initially looking at the picture as a whole, the following categories below are evident. Examples of the kinds of mental questions one might ask and answer are shown.

- People. Can they be categorized further (victims, firefighters, pedestrians, children)? What are they doing? What interactions are depicted? Where are they located with respect to other details in the scene? Are there distinguishing characteristics (in a wheel chair, wearing a hat, flying a kite)?
- Establishments. Can they be categorized further (retail, business offices, government/public buildings)? What kinds of businesses are visible? Do the businesses have names? Where is each establishment located with respect to other details (street names, adjacent to what other features/landmarks)?
- Vehicles. What kinds? Are there emergency vehicles? Is there any identifying information (cab number, company name, license plate numbers)?
- Special details. Is it an emergency scene? What seems to have happened? What's happening now?

Actually, these example categories are likely to be relevant for a variety of kinds of visual materials, not just street scenes. For example, they work for fire ground and fire scene sketches and drawings. In order to use this strategy effectively, you need practice using these categories and others like them. Other kinds of visual materials may call for additional or different categories. For example, building diagrams and floor plans generally do not include people, but categories like "rooms", "water sources", and "exits" come to mind immediately.

Imagery and Association

Remembering the names of people, streets, or businesses can be improved by the use of imagery and association. Let's take the example of a picture that depicts a bus with its destination display indicating "Clifton Heights". If you were to quickly create a mental image of a bus arriving in a town that is at the top of a high cliff (cliff-town-high), you would be using imagery and association. And you would probably know the answer if you were asked later where the bus in the picture was going.

A license plate with the number EBD-120 might be recalled later by creating an image of a car on the showroom floor, covered with mud, and having a large price tag with \$120,000 written on it: Expensive But Dirty-120 thousand. These techniques work best when the images you create are personal, extreme, unusual, or even bizarre.

The effective use of this strategy requires that you develop the ability to create mental images and associations quickly. This can be achieved only by practicing. With practice, it can become a habit or an automatic response to the need to remember names for later recall. In the examination setting, where time is critical, if you draw a blank, you should not work at it too long.



Improving Your Observation and Memory Skills

Observation and memory skills can be improved with practice. Create observation and recall exercises for yourself. Use pictures or photographs in books, magazines, and newspapers to practice the observation and recall strategies described above. News photographs are often best because they are more likely to be action-oriented, have more than one person in them, and include detailed backdrops.

In a quiet place where you will not be distracted, allow yourself no more than two minutes to study the picture. When your study time is over and with the picture out of sight, write down all of the details that you observed and can remember from the picture. When you are finished, look back at the picture and see how well you did.

Practice all of the techniques described. At first, use them one at a time while you become familiar with them. Then practice them together. Some of the strategies and certain combinations may work better for you than others.



SECTION 3: READING WITH UNDERSTANDING

The third section of the Firefighter Examination is designed to assess your reading abilities. The measure of reading ability that is emphasized in this examination component is how well a reader understands what is read. Firefighters must be able to read, understand, and apply information contained in written materials, for example, in training materials, department procedures and directives, fire and building codes, and equipment operations and maintenance manuals.

This part of the Firefighter Examination consists of several reading passages on fire service topics. Each brief article is followed by questions that ask about the information that it contains.

There are thirty (30) questions in all. They ask about specific ideas, details, or facts that are stated in the reading passages. You may have to mentally rephrase what is written or separate important information from less important information. However, the answers are in the reading passages.

A Brief Example

Engine Companies

The primary function of an engine company has traditionally been to extinguish fires. Other engine company duties have included responding to other emergencies, such as motor vehicle accidents and rescues. In recent years, another responsibility has been added. In many cases, providing emergency medical services (EMS) has become the primary duty for engine companies. These engine companies have become first responders for the growing number of emergency medical calls. They are dispatched in addition to an ambulance for the purpose of providing additional manpower at the scene. Since the number of fires has declined in the past decade, firefighters are trained to handle medical calls. Therefore, if the engine company arrives first, they begin medical treatment.

1. According to the reading passage above, which of the following is frequently the primary function of engine companies today?
 - A. To extinguish fires.
 - B. To provide emergency medical services.
 - C. To arrive first and begin medical treatment.
 - D. To respond to motor vehicle accidents and rescues.

The best answer to this question is “B”. In the passage, discussion of emergency medical services includes several clues or links to the question. The passage’s use of the phrases “in recent years” and “in many cases” are replaced in the question with “today” and “frequently”.



Choices “A” and “D” are incorrect because they describe the past. Note the word “traditionally” in the passage’s discussion of “A”. And where “D” is introduced, note the words “have included” that also refer to the past. Choice “C” is described in the passage as a specific action that an engine company takes in a particular situation. It is clearly not about the primary function of engine companies.

The Sample Examination at the end of this study guide contains a sample “Reading with Understanding” section. It has another reading passage and additional example questions.

Strategies for Reading with Understanding

- Answer reading-based questions solely on the basis of the information provided in the reading passage. You may know more about a topic, but do not use that knowledge in answering this kind of question.
- Remember that this examination component is not a memory or recall test. You are allowed to read the passage more than once and you may refer back to it as you read the questions and consider the answer choices.
- Remember that, except where note taking is specifically prohibited (the “Following Oral Instructions” and “Observation and Memory Skills” sections), you are allowed to write in the Firefighter Examination booklet. Underline or circle key points, phrases, and words.
- Use restraint in marking up the reading passages. Too many marks, arrows, and notes in the margins become confusing. When carried to extremes, marking becomes so time consuming that it is counterproductive.
- Develop and practice a systematic approach to reading-based questions.

One strategy starts the task by first reading the “stem” of each of the questions—the part before the answer choices. Doing this before you read the passage alerts you to the type of information that you need in order to answer the questions. Then carefully read the entire passage, circling or underscoring information foreshadowed by your reading of the questions’ stems. When you have finished reading the passage, carefully read and answer each of the questions.

Another version of this strategy involves scanning the reading passage first and then doing the steps already described. The purpose is to first get an idea of what the passage is about. This kind of scanning does not mean to “speed read” the entire passage. In this approach, a useful initial scan would involve reading the first sentence of each paragraph and then the entire last paragraph.

- Create mental images of what you are reading. Your understanding of certain kinds of reading passages can be made easier by creating a mental picture of what is being described. This strategy may not work for all kinds of topics. It works best with reading passages dealing with procedural, physical, or factual topics, for example, descriptions of actions to be taken, components of equipment, features of a structure, and similar content.



Improving Your Reading with Understanding

Reading abilities can be improved with systematic practice. You can improve your ability to concentrate and understand the content of what you read with as little as 15 minutes a day.

- Select a time and place that are free of distractions. Set aside this time each day to work on reading exercises that you create for yourself.
- Select reading materials from magazines and newspapers. Start with short, easy-to-read articles and read with a pencil in your hand.
- Concentrate on what you are reading. Underline main ideas and facts that seem critical to the message or purpose of the article. Look for and strive to understand the important concepts of the content, for example, reasons, causes, consequences, and relationships.
- When you have finished the article, summarize it for yourself in writing, or explain it to another person.
- Then read the article again and compare your summary to its content. Did you miss important information or key ideas?
- As you progress, increase the length and the complexity of the articles that you use.
- Remember, the skills that you are developing call for short periods of focused concentration. Read every word. Think about what you are reading.



SECTION 4: MECHANICAL REASONING SKILLS

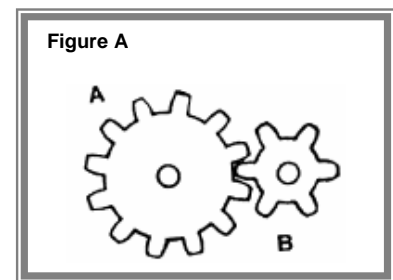
The fourth section of the Firefighter Examination is designed to determine how well you understand basic mechanical principles and devices. Firefighters use mechanical devices every day and a basic understanding of mechanical concepts is critical to the job.

This part of the examination consists of a series of drawings of simple mechanical devices. For each drawing, one or more questions are asked. These questions inquire about how the device works or how it would perform under specific conditions. There are no questions that require knowledge of specialized firefighting tools or hydraulics (the principles governing water in motion). There are twenty-five (25) questions in all.

An Example

1. In Figure A, Gear A has 12 teeth and Gear B has 6 teeth. If Gear A makes 8 complete revolutions, how many revolutions will Gear B make?

- A. 4
- B. 8
- C. 12
- D. 16



The answer to this question can be approached in a couple of ways.

- a) Using imagery and logic, you can visualize the movement of the gears. As they turn, their teeth match, tooth for tooth. Therefore, it will only take 6 of Gear A's teeth to have moved Gear B a full rotation. So every full rotation of Gear A will move Gear B two rotations. It follows that 8 rotations of Gear A will have rotated Gear B 16 times. The correct answer is choice "D".
- b) The problem can also be solved with application of some fundamental knowledge of the relationship between gears. The number of rotations times the number of teeth on the drive gear (Gear A) will equal the same computation for the driven gear (Gear B). The math looks like this:

$$(\text{Teeth}_A) \times (\text{Revolutions}_A) = (\text{Teeth}_B) \times (\text{Revolutions}_B)$$

Three of these values are known from the information provided in the question.

$$(12) \times (8) = (6) \times \text{Revolutions}_B$$

$$\text{Revolutions}_B = (12 \times 8) \div 6 = 96 \div 6 = 16$$

The Sample Examination at the end of this study guide contains a sample "Mechanical Reasoning Skills" section. It has additional drawings and example questions.



Strategies for Mechanical Reasoning Skills

- Look at the drawing first. Study it carefully. Note any details, such as labeled parts and components, or arrows indicating direction of movement. Sharp observation and accurate interpretation of what is being shown are critically important.
- Create a mental image of moving parts in motion. Visualize how the movement of one component affects the movement of other components.
- Read each question carefully. Refer back to the drawing and locate any labeled parts that are referred to in the question. Be sure that you understand the question.
- A question may ask about how a device would perform if specific assumptions are made that are not shown in the drawing. Add to the drawing (you can write in the booklet) any numerical values (length, diameter, rpm, etc.) and movement information that are provided in such a question. In the example question above, the number of teeth would have been penciled in on the face of each gear or off to the side with arrows.

Caution. Where more than one question refers to the same drawing, erase any numbers or movement arrows that you add as soon as you have answered the question to which they apply. Otherwise, you may erroneously use that information in answering later questions to which it does not apply. At the very least, this practice prevents confusion, double checking, and wasted time.

Improving Your Mechanical Reasoning Skills

Mechanical reasoning involves a mix of skills and abilities. These include skill in visualizing the operation of machines in motion, the ability to see the relationships among the different parts of a machine, and the ability to perform computations based on relationships among such factors as force, distance, and speed.

There is also a knowledge component that is often taken for granted. That component is knowledge and understanding of simple machines: the lever, inclined plane, wheel and axle, pulley, screw, and wedge. The mechanical principles represented by these machines are usually formally encountered in secondary education (or earlier) courses in the basic sciences.

The best thing that you can do to improve your mechanical reasoning skills is to refresh your knowledge and understanding of simple machines. You may have science books (for example, natural science or introductory physics) from earlier schooling. If not, this topic is addressed in most basic references and text books that are available from the library, book stores, or on-line sources. If you don't know where to begin, start with an encyclopedia.



SECTION 5: COMPUTATIONAL ABILITY

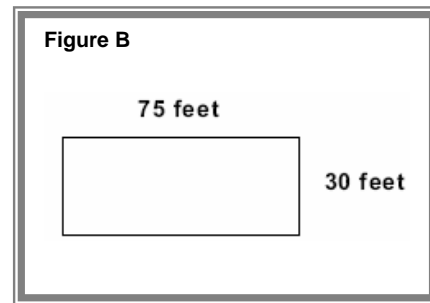
The final section of the Firefighter Examination is designed to assess your ability to solve problems involving numbers. Often firefighters must solve a variety of practical arithmetic problems, for example, determining water pressure for a hose lay and discharge in gallons per minute for various hose sizes.

This part of the examination contains twenty-five (25) questions designed to assess your proficiency in performing the four common operations of arithmetic—addition, subtraction, multiplication, and division. Solution of the arithmetic problems posed by these questions includes performing these operations on decimals, fractions, and percentages.

Most of the questions describe arithmetic tasks in a narrative or “story problem” format. This requires the application of numerical reasoning skills to determine which arithmetic operations must be used and in which order. Several questions also include simple drawings of geometric figures, formulas, or equations. There are no questions that require knowledge of hydraulics (the principles governing water in motion) or formulas specific to the fire service.

An Example

1. The simple sketch below represents the protective area around a hazardous building. The area is to be roped off to prevent possible injury to civilians while the cause of the fire is investigated. If the area is 75 feet long and 30 feet wide, how many yards of rope will be required?
 - A. 35 yards. 75 feet
 - B. 70 yards.
 - C. 105 yards. 30 feet
 - D. 210 yards.



The correct answer is answer choice “B”, 70 yards. The distance around the area is computed by adding the length and the width and then multiplying that sum by 2:

$$(75 \text{ feet} + 30 \text{ feet}) \times 2 = (105) \times 2 = 210 \text{ feet.}$$

Since the question asks for the number of yards of rope needed, 210 feet must be divided by 3 (1 yard = 3 feet):

$$210 \text{ feet} \div 3 \text{ feet/yard} = 70 \text{ yards.}$$

The Sample Examination at the end of this study guide has a sample “Computational Ability” section. It contains additional example questions.



Strategies for Computational Ability

- Read the stem of each question (the part before the answer choices) carefully and underline or circle key words or phrases. In the example question above, it would have been a good idea to circle the word “yards”. Since the data in the problem was provided in feet, circling this word might well prevent making an error. An error would have been easy to make. Note in the example question that “D”, one of the incorrect answer choices, is “210 yards”. This is the number of feet of rope required.
- In a long narrative question, circle the actual statement of the question. This will keep you focused as you think about and solve the problem. You can refer back to it quickly.
- Form a plan of attack. For the more complex problems, take notes in the examination booklet. For example, if arriving at the solution is going to require several steps, jot down the steps to keep yourself from skipping one.
- Draw a picture in the examination booklet if it will help you to better understand a problem.
- Before you perform any calculations, glance quickly at the answer choices. Your purpose is strictly to determine the units (if any), for example, feet or yards. This lets you know what you need to end up with. If the answer choices are all fractions, you will want to do your work in fractions; if they are decimal values, you should work in decimals. This can save you from having to perform a conversion when you could have been finished.
- Try not to attend to the actual values of the answer choices when you are checking for units. Computation questions have one correct answer. Perform the calculations and then look to see if the answer you came up with is one of the choices.
- Resist doing computations in your head. You may think that you can solve some of the easier questions more quickly in your head. That is a very good way to make a mistake and answer an easy question incorrectly.
- Write out your computations right on the test booklet page, right next to the examination question. Write out each step. This is a valuable aid if you have time to come back and review your work. You can literally see what you did.
- When you have computed an answer, reread the question (or the portion that you circled) and make sure that you have answered the question that was asked. This can prevent you from making the careless error of answering the wrong question.
- If you have time, check your work. You can get a false sense of security when you obtain an answer that matches one of the answer choices. You need to remember that wrong answers to computational questions usually represent the answers that will be obtained if common, careless, or easy mistakes are made.
- Skip hard questions and come back to them later, if you have time. This is especially true for computational questions. It is too easy to spend so much time on one hard question that you run out of time and cannot finish the examination.



Even if you get a hard question correct, if it prevents you from being able to answer a number of easier questions, you lose.

Improving Your Computational Ability

The best way to improve your performance of the computational tasks in the Firefighter Examination is to spend some time reviewing basic arithmetic concepts. The arithmetic involved is fairly simple. There is no need to learn or brush up on geometry or trigonometry.

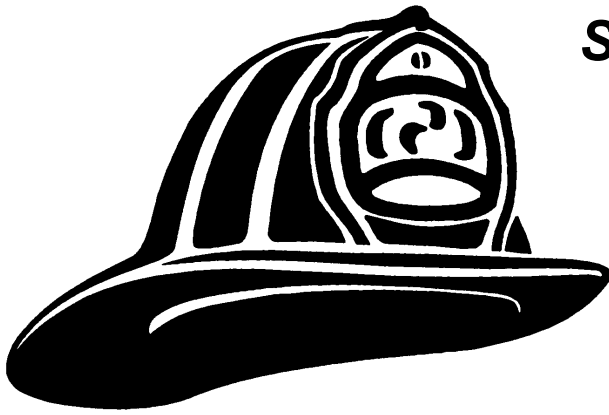
A basic high school math book is sufficient. Dig out your old one—this stuff doesn't change. Or check out basic math references at the book stores, library, or on-line sources. Review fractions, decimals, and percentages. And be able to convert one to the other. You need to be comfortable using formulas or equations.

Review all of these topics and related concepts and then practice. Do the questions at the end of the chapters. Be sure to check to be sure that you got them correct. It is a good idea to look specifically for references and study sources that include the correct answers. Otherwise, have your work checked by someone competent to know whether it is correct.



Sample Examination

This section, the next 14 pages, contains sample questions and the same instructions and layout as the Firefighter Examination.



Sample Examination

Firefighter Examination

The following is a sample of the examination that will be administered to Firefighter candidates.

This booklet must be returned to the test administrator at the close of the examination. The test administrator will announce when you are to start and when you are to stop working on the examination.

Work on each examination part according to the instructions provided. Do not answer any question until you have read it carefully. You may write or perform computations in this booklet, except during those parts of the test when note taking is forbidden. However, to receive credit, you must mark your answers on the Answer Sheet.

Any examinee who talks with or attempts to talk with another or who copies or aids another in copying during the course of the examination will be disqualified.

Content of the Examination

Following Oral Instructions	30 questions
Observation and Memory Skills	30 questions
Reading with Understanding	30 questions
Mechanical Reasoning Skills	25 questions
Computational Ability	25 questions
	<hr/>
	140 questions

Do not turn this page until told to do so.

Booklet Number _____

General Instructions

The following instructions are to be used for answering the multiple-choice and true-false questions in this examination.

To mark your answers on the answer sheet, you are to blacken the space for one, and only one, of the letters to indicate your answer to each question. Before you answer each question, be sure that the number of the answer space you mark is the same as the number of the question you are answering.

If you mark an answer and then wish to change it, **be sure you completely erase your first choice** before you mark your new choice. Use only a soft lead pencil to record your answers.

Read the following instructions and examples carefully, then note how the answers have been indicated on the Sample Answer Sheet.

Multiple-Choice Instructions: When you are given a multiple-choice question, select the ONE BEST ANSWER of the choices given. Then blacken the space for the correct letter on the answer sheet.

Multiple-Choice Example:

1. The capital of the United States is:

- A. Washington, D.C.
- B. Los Angeles.
- C. New York.
- D. Chicago.

Sample Answer Sheet

	(T)	(F)			
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

True-False Instructions: When you are given a true-false question, mark "A" if the statement is true and mark "B" if the statement is false.

True-False Example:

2. The capital of the United States is New York.

Scoring Formula

All questions in this booklet will be scored on the basis of the number of correct answers. It is to your advantage to use your best judgment and attempt to answer all of the questions.

Do not turn the page until told to do so.

Following Oral Instructions

General Instructions

This part of the test is designed to measure how well you can follow spoken instructions. In order to do this, the test questions are presented by an audio recording. When the recording is started, it will provide all of the instructions that you will need to complete this part of the test. Listen very carefully and follow the instructions that you hear.

When the recording stops, **do not turn the page in the test booklet!** The test administrator will tell you what to do when the recording stops.

Sample audio script: Have someone read this aloud to you while you are looking at page 5 of this booklet so that you can answer the sample questions.

“This is a test of Following Oral Instructions. Much of the information received in the work setting is obtained by listening. In addition, much of the information needed to perform a job consists of instructions or directions. This is a test of how well you can follow oral instructions. Sometimes the instructions will be very simple and sometimes they will be complicated, so you must listen carefully.

I will read the instructions for each question. Then, after I have finished, you are to determine the correct answer to the question. In every case, the instructions will require that you look at the appropriate box in the test booklet and then mark your response on the answer sheet. Your test booklet should be turned to Sample Page 5. (*Pause briefly.*)

Let's begin. Listen very carefully. I will tell you the number of the question before I read its instructions. Be sure that you mark your answer sheet in the space that has the same number as the number of the question I read.

Look at the box marked “A” in the test booklet. The top row has 8 letters and the “K” and the “W” have been underlined. The middle row has some geometric figures and some numbers. The number “2” has been underlined. The bottom row has 8 letters and the “J” and the “V” have been underlined.

Number 1: In Box A, which number is directly below the first underlined letter?
(*Pause 5 seconds.*)

The first underlined letter is the letter “K”. The number that is below the letter “K” is the number “5”.

Now look at question number 1 in the test booklet. The number “5” is the choice marked “B” in the test booklet. Therefore, you should fill in the space marked “B” for question number 1 on your answer sheet. Do that now. (*Pause 5 seconds.*)

All questions should be answered in the same way as question 1. I will tell you the number of the question first. The instructions will tell you which box to look at. When you have determined the correct answer, you are to look at the answer choices for that question number in the test

booklet. The letter that designates the correct answer should then be marked on your answer sheet. I will always give you time to mark your answer sheet before I go to the next question. All questions should be answered in the same way. Listen carefully. I will ask each question only once. (*Pause briefly.*)

Number 2: In Box A, multiply by 3 the number that is directly below the letter “Y”. What is the result of that arithmetic? (*Pause 10 seconds.*)

Number 3: In Box A, which letter is just before the letter that is directly above the figure that is a circle? (*Pause 10 seconds.*)

Number 4: In Box A, which figure is directly below the letter that is just before the second underlined letter? (*Pause 10 seconds.*)

Number 5: In Box A, add the numbers that are directly above the two underlined letters and then subtract “7” from that sum. Which letter is directly above the number that is the result of that arithmetic? (*Pause 10 seconds.*)

Number 6: In Box A, which figure is just before the number that is directly above the letter that follows the letter “T” ? (*Pause 10 seconds.*)

Number 7: In Box A, subtract “3” from the largest number. If the difference is an odd number, mark on your answer sheet the choice that is the number directly above the letter “V”. If the difference is an even number, mark on your answer sheet the choice that is the number that is directly above the letter “S”.

. . . etc.

Following Oral Instructions

(30 questions)

E	R	M	<u>K</u>	N	<u>W</u>	Y	P
▲	9	■	5	◇	7	<u>2</u>	○
G	<u>J</u>	T	<u>V</u>	R	S	F	Q

Box A

1.

- A. 2
- B. 5
- C. 7
- D. 9

2.

- A. 6
- B. 15
- C. 21
- D. 27

3.

- A. P
- B. Q
- C. F
- D. Y

4.

- A. ◇
- B. ○
- C. ▲
- D. ■

5.

- A. K
- B. V
- C. W
- D. S

6.

- A. ◇
- B. ○
- C. ▲
- D. ■

7.

- A. 2
- B. 5
- C. 7
- D. 9

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. .
.

etc.

Observation and Memory Skills

(30 questions)

Instructions

This part of the examination consists of a picture and thirty questions to test your observation and memory abilities. When the test administrator tells you to begin, you will turn the page and have TWO (2) minutes to observe as many details of the entire scene as possible. **You are not allowed to take notes during the study period.** When time is called, you must turn the page and stop studying the picture.

When the two-minute study period is over, you will answer questions that refer to the picture.

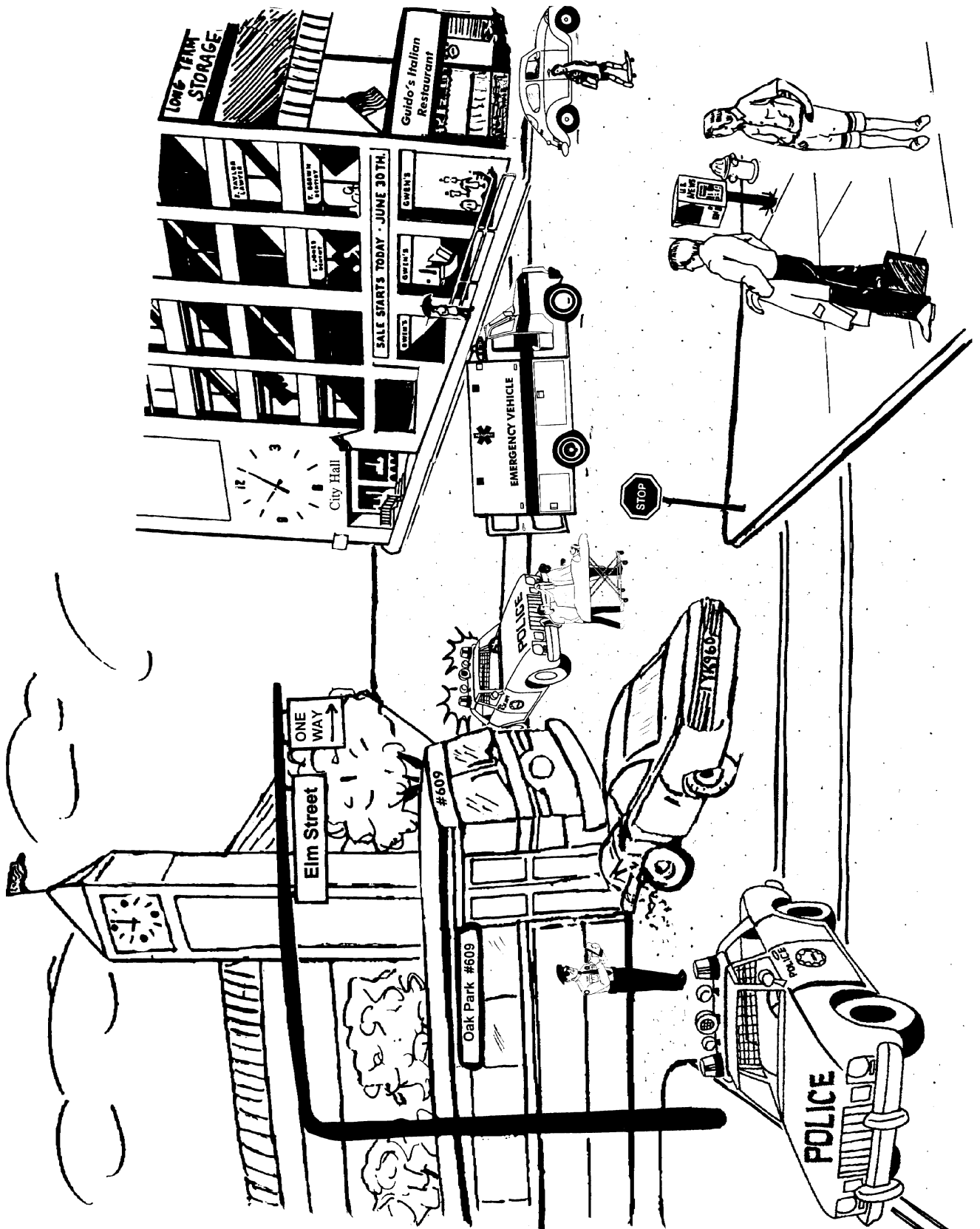
You are not to look at the questions until after the two-minute study period has ended.

You are not to look at the picture again at any time during the remainder of the test.

Time Limit

When the two-minute study period is over, you will have two and one-half (2½) hours to complete the remainder of this examination. Do not spend too much time on any one question or test part or you may not finish before time is called.

Do not turn the page until told to do so.



Do not turn to the next page
until after the two-minute study period is over.

Observation and Memory Skills

(30 questions)

Key

A = The statement is **true**.

B = The statement is **false**.

1. The bus was going to Oak Park.
2. There were two police officers near the accident scene.
3. There were two flags on the top of the clock tower.
4. City Hall was on Elm Street.
- .
- .
- .
- etc.

Reading With Understanding

(30 questions)

Use **only** the information in the reading passage below to answer the questions that follow.

Fire Prevention

Fires are primarily prevented by addressing the circumstances that produce them. Nearly all fire causes can be put into one of three categories. These categories are improper use of materials, unstable and hazardous materials, and human carelessness. Arson is one of the few fire causes that does not fit into one of these three categories. All of the three major kinds of fire causes can be reduced through public education and enforcement of fire and building codes.

The enforcement of fire and building codes results in the prevention of loss of life and property. Of course, the foundation for effective enforcement is a well conceived and implemented inspection program. Such inspections are conducted to determine compliance with codes that are directed toward fire safety, for example, exits and the number of occupants.

1. According to the reading passage, the successful enforcement of fire and building codes results in:
 - A. public education.
 - B. the prevention of loss of life and property.
 - C. a well conceived and implemented inspection program.
 - D. compliance with codes that are directed toward fire safety.

2. According to the reading passage, arson falls into which of the following categories of fire causes?
 - A. Human carelessness.
 - B. Improper use of materials.
 - C. Unstable and hazardous materials.
 - D. It does not fit into one of these categories.

.
. .
. .
etc.

Mechanical Reasoning Skills

(25 questions)

1. In the gears shown below in Figure 1, which of the following statements correctly describes their rotation?
- A. As gear "B" turns in a clockwise direction, gear "A" will turn in a counterclockwise direction at the same speed.
 - B. As gear "B" turns in a clockwise direction, gear "A" will turn in a counterclockwise direction at a slower speed.
 - C. As gear "B" turns in a clockwise direction, gear "A" will turn in a clockwise direction at the same speed.
 - D. As gear "B" turns in a clockwise direction, gear "A" will turn in clockwise direction at a slower speed.

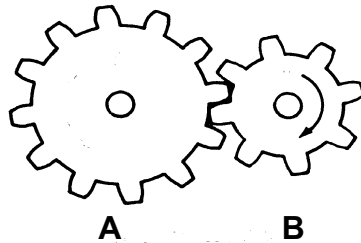


Figure 1

2. In Figure 2 below, what is the purpose or result of the cross in the belt that connects pulleys "X" and "Y" ?
- A. This makes pulley "Y" turn faster.
 - B. This makes pulley "Y" turn slower.
 - C. This reduces the force on pulley "Y".
 - D. This changes the direction in which pulley "Y" turns.

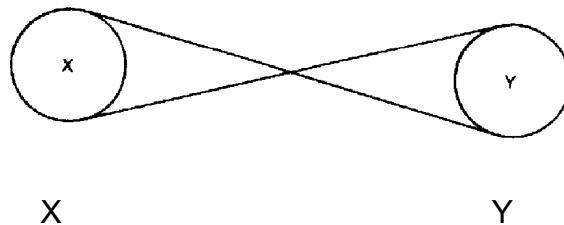


Figure 2

.
. .
. .
etc.

Computational Ability

(25 questions)

1. A 60,000 gallon tank is full of water. The discharge system allows it to be emptied at the rate of 100 gallons per minute. How long would it take to completely empty the tank?

- A. 60 minutes.
- B. 10 hours.
- C. 60 hours.
- D. 100 hours.
- E. 600 hours.

2. Use the formula below to compute the area of a triangle that has a 2 inch base and a height of 4 inches.

$$A = \frac{B \times H}{2}$$

where:

A is the area of the triangle
B is the base of the triangle
H is the height of the triangle

The area of the triangle is:

- A. 2 square inches.
- B. 4 square inches.
- C. 6 square inches.
- D. 8 square inches.
- E. 16 square inches.

.

.

.

.

etc.

This is the end of the examination.

**If you finish before time is called, you may go back
and review your work on questions 61 through 140 only.**

Sample Firefighter Examination

Answers to the Sample Questions

Following Oral Instructions

1. B
2. A
3. D
4. A
5. C
6. D
7. C

Observation and Memory Skills

1. A
2. B
3. B
4. B

Reading with Understanding

1. B
2. D

Mechanical Reasoning Skills

1. B
2. D

Computational Ability

1. B
2. B