

# ENTRY LEVEL FIREFIGHTER EXAM STUDY GUIDE

AUSTIN FIRE DEPARTMENT

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## TABLE OF CONTENTS

<b>INTRODUCTION</b>	<b>1</b>
<b>GENERAL WRITTEN EXAM INFORMATION</b>	<b>1</b>
<b>WRITTEN EXAM SPECIFICS</b>	<b>2</b>
<b>ANSWER SHEET BASICS</b>	<b>3</b>
<b>TYPES OF WRITTEN EXAM QUESTIONS</b>	<b>3</b>
MEMORIZATION	4
READING PASSAGES AND QUESTIONS	5
MATH	6
MECHANICAL	7
SPATIAL	8
FLEXIBILITY OF CLOSURE	12
<b>BEHAVIORAL QUESTIONS</b>	<b>14</b>

## **INTRODUCTION**

This study guide has been developed to help prepare you for the upcoming Austin Fire Department Entry-Level Firefighter written exam process. The examination process consists of an:

- Entry Level Abilities and Behaviors Exam (includes a Pretest study period before the exam)

This testing process is designed to measure work behaviors, skills, and abilities important to becoming a firefighter. Even though sometimes the questions are placed in a firefighting context within the tests, you are not required to have prior knowledge about the fire service.

The following sections will discuss general examination information, the exam components in detail, and the types of questions included in each component.

## **GENERAL WRITTEN EXAM INFORMATION**

On the day of the exam, once you register, you will not be able to leave the testing area until you complete the exam. Registration lines will be long, and you should expect to be at the test for at least 4 hours. It is recommended that you do not take any communication devices to the testing area.

After you register, you will be escorted into the room where you will be tested. Once all candidates have registered, the Entry Level Abilities and Behaviors Exam will be administered. This exam includes a pretest study period (explanation in a following section) and the actual exam. Once the test time elapses, your answer sheet and test booklet will be collected, and you will be escorted from the test area. If you complete the exam before the time elapses, you will be allowed to leave.

Because of the large number of candidates testing, restroom lines could be very long. No one will be allowed to go to the restroom when test instructions are being read, and there will be strict procedures to follow regarding use of the restroom during test times.

## WRITTEN EXAM SPECIFICS

The **Entry Level Abilities and Behaviors Exam** includes a Pretest Study Booklet, Answer Sheet, and Entry Level Abilities and Behaviors Exam Booklet. The following abilities are assessed by this exam: Memorization, Mathematical Reasoning, Number Facility, Mechanical Reasoning, Reading Comprehension, Flexibility of Closure, and Spatial Orientation. This exam also includes behavioral questions that assess attributes such as Work Ethic, Accountability, and Teamwork.

The administration of the exam is structured as follows:

1. Pretest Study Period – You are presented with the Pre Test Study booklet to read, study and remember material associated with the exam. You will be allowed a designated period of time (announced on test day) to study and memorize the material presented in the Pretest Study booklet. You **MAY** write in this booklet. However, you must turn in the booklet at the end of the pretest study period. **You must not write on your answer sheet during this time.** The material that must be learned and committed to memory typically contains written procedures, diagrams, and pictures. After the study period has ended, the Pretest Study booklet is collected and the Entry Level Abilities and Behaviors Exam booklets are passed out.
2. Entry Level Abilities and Behaviors Exam – You will be allowed a designated period of time to complete this exam (announced on test day). This exam includes both cognitive and behavioral questions. You **MAY** write in this test booklet.

## ANSWER SHEET BASICS

You will be provided an answer sheet with each exam. All of the questions from each test are multiple choice in format. You will be required to darken in the answer for each question. An example that is included in the test day's general instructions has been provided below for your review.

### Question in Test Booklet

1. A major responsibility of firefighters is to:
- give speeches.
  - repair water leakages.
  - direct traffic.
  - fight fires.

### Item on Answer Sheet

1.      Ⓐ Ⓑ Ⓒ ● Ⓓ Ⓕ Ⓖ Ⓗ

Answer "d" is the best answer and bubble "d" has been darkened to show this.

*When completing your answer sheet:*

- Fill in the bubble completely. The computer may not score your answer correctly if partially filled.
- If you erase an answer, be sure to erase it completely.
- Use a #2 pencil only.
- When marking an answer on the answer sheet, be sure the row of answer bubbles is numbered the same as the number of the question on which you are working.
- Darken only one (1) bubble for each question. If you darken more than one (1) bubble per question, you will receive no credit for that question.

## TYPES OF WRITTEN EXAM QUESTIONS

The questions included in each written exam component are designed to measure your basic cognitive and behavioral (non-cognitive abilities). In this section, we will list the type of questions and present sample questions to familiarize you with the different question formats. The asterisk (\*) indicates the correct answer for all sample questions.

### Memorization

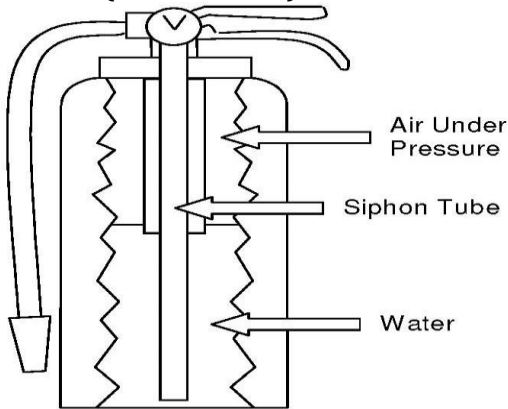
The Pretest Study Booklet includes written information, pictures, and diagrams that you will need to memorize to later answer questions in the Entry Level Abilities and Behaviors Exam Booklet. Being able to remember details of what is seen, heard, and read has always been a characteristic of a good firefighter. A firefighter must be able to remember the proper arrangement of equipment, routes in their assigned areas, and departmental procedures to prevent mishandling important duties for emergencies.

The Memorization information in the Entry Level Abilities and Behaviors Exam Booklet will be the first material from which you are tested for this exam. It is recommended that while memorizing the information in the Pretest Study Booklet, you use a method or plan and stay focused and attentive to the material. It may also be helpful to practice memorizing other material before the test.

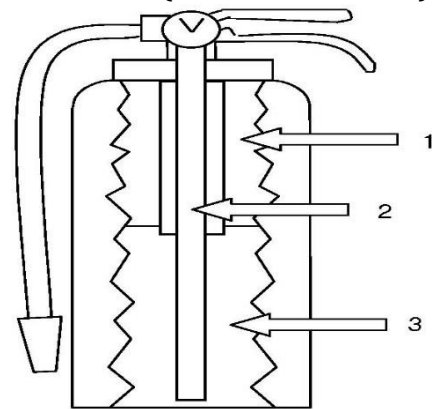
### Example Question

Diagram I–Stored Pressure Water Extinguisher

Part 1 (from Pretest)



Part 2 (from Test Booklet)



Answer the following question based on Part 2 of Diagram I–Stored Pressure Water Extinguisher.

1. Which of the following does the number 3 represent?
  - \* a. water
  - b. air
  - c. air under pressure
  - d. siphon tube

### ***Reading Passages and Questions***

The Entry Level Abilities and Behaviors Exam includes questions that assess reading comprehension. These questions follow written passages sometimes placed in fire suppression context. The intent is for you to demonstrate how well you understand what you read. Reading comprehension, or understanding what you read, is very important to your success both on the test and on the job. A firefighter at any level will have to read and interpret volumes of information. How well you use this ability will directly relate to how well you do your job.

### **Example Passage and Questions**

#### **Passage**

Oftentimes, when one thinks of a firefighter, they immediately visualize a dog in their midst, specifically a Dalmatian. This is appropriate and with good reason. Although they are not as important today, in ages past, when fire trucks were pulled by horse drawn carriages, the Dalmatians' skills were very important. In order to help the fire department run at full strength, dogs were trained and used to help guide and direct the horses where to go when en route to a fire scene. Because of their friendly behavior, ease of being trained, and ability to look after themselves, Dalmatians became the dog of choice. Since fire trucks are now powered by gasoline, the dogs are no longer needed. However, for the sake of tradition, some can still be found in many fire houses across the country.

Answer questions 1 -2 based on the Passage above.

1. According to the passage, dogs were often used to:
  - a. provide firefighters with companionship.
  - b. protect the fire house.
  - \* c. guide and direct horses.
  - d. assist in rescues.
  
2. Which one of the following would be the most accurate title for the passage?
  - a. Man's Best Friend
  - b. Traditions
  - \* c. The Firehouse Dog
  - d. Training a Dalmatian

### ***Math Questions***

These questions involve mathematical reasoning to understand a word problem and to figure out what information the word problem is attempting to elicit. After identifying data necessary to solve the problem, you must be able to manipulate the numbers to generate a correct response.

A calculator is not provided for your use during this portion of the exam. Therefore, you should practice developing these skills without the use of a calculator. The mathematical operations that are generally tested in this section of the exam usually involve addition, subtraction, multiplication, division, percentages, decimals, fractions, and simple algebra. Sometimes the exam presents a table of data, and the test taker must perform mathematical computations on the data presented in the table.

Math is of extreme importance to firefighters because it helps them figure out necessary formulas, such as what size nozzle tip and what length of hose to use to fight a fire. Firefighters must also use formulas to compute various numbers such as the pounds per square inch of pressure needed to pump enough water onto a fire to extinguish it.

### **Example Questions**

1. Assume that, for safety, the base of a ladder must be placed at a distance equal to 25% of its length away from the base of a building. If the ladder is 20 feet tall, how far away from the base of the building should the ladder be placed?
  - a. 2 feet
  - \* b. 5 feet
  - c. 10 feet
  - d. 14 feet

2. Friction loss is the reduction of water pressure which occurs as water travels over distance and through any kind of restriction. Following is the formula for friction loss (FL) in a 2 ½ inch fire hose:

$$FL = 2Q^2 + Q \quad \text{where: } Q = \text{GPM}/100$$

Based on the information given above, what is the friction loss of a 2 ½ inch hose when the gallons per minute (GPM) is 185?

- \* a. 8.7
- b. 15.5
- c. 9.3
- d. 10.2

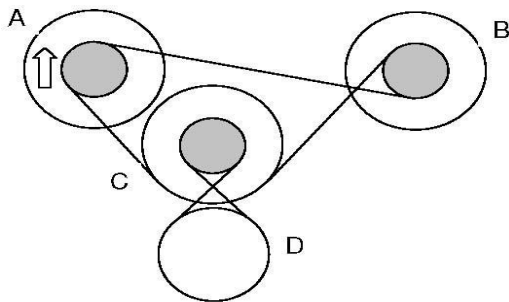


### Mechanical Questions

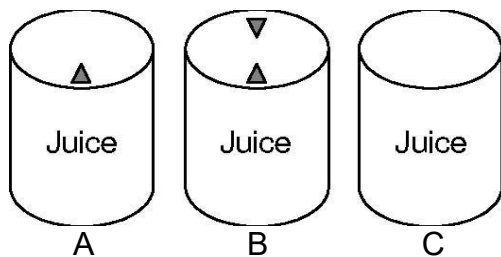
You will be asked questions that deal with basic physical and mechanical principles. These questions could involve pulleys, gears, energy and power, motion, resistance, equilibrium, and fluidity.

Mechanical reasoning is important to firefighters because they must be able to understand how certain tools and pieces of equipment work. They must be able to operate pumps and other complicated equipment and position ladders.

### Example Questions



1. Which of the following statements is **CORRECT** regarding the picture above?
  - a. Wheel B is moving clockwise.
  - b. Wheel D is moving clockwise.
  - c. Wheel C is moving counterclockwise.
  - \* d. Wheel D is moving counterclockwise.



2. Which of the following containers of juice pictured above will pour most easily?
  - a. container A
  - \* b. container B
  - c. container C
  - d. They will pour equally easily.

## **Spatial Questions (Shapes and Maps)**

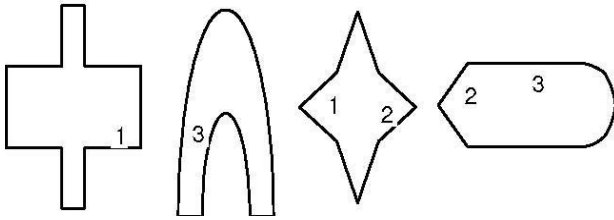
### *Shapes*

You will be presented with various shapes and will be required to mentally rotate and rearrange the shapes according to some given specifications or to fit them into a certain pattern. The objects that are to be mentally assembled appear at the beginning of each item and often will be marked with one or more numbers or letters which identify some particular place on the object. There will be four choices of how the objects could be put together. The correct choice is assembled with the matching numbers or letters put together or lined up. The candidate must choose the correct choice from the given arrangements. Only one of the choices is correct. The given objects may need to be flipped, turned, or rotated as appropriate.

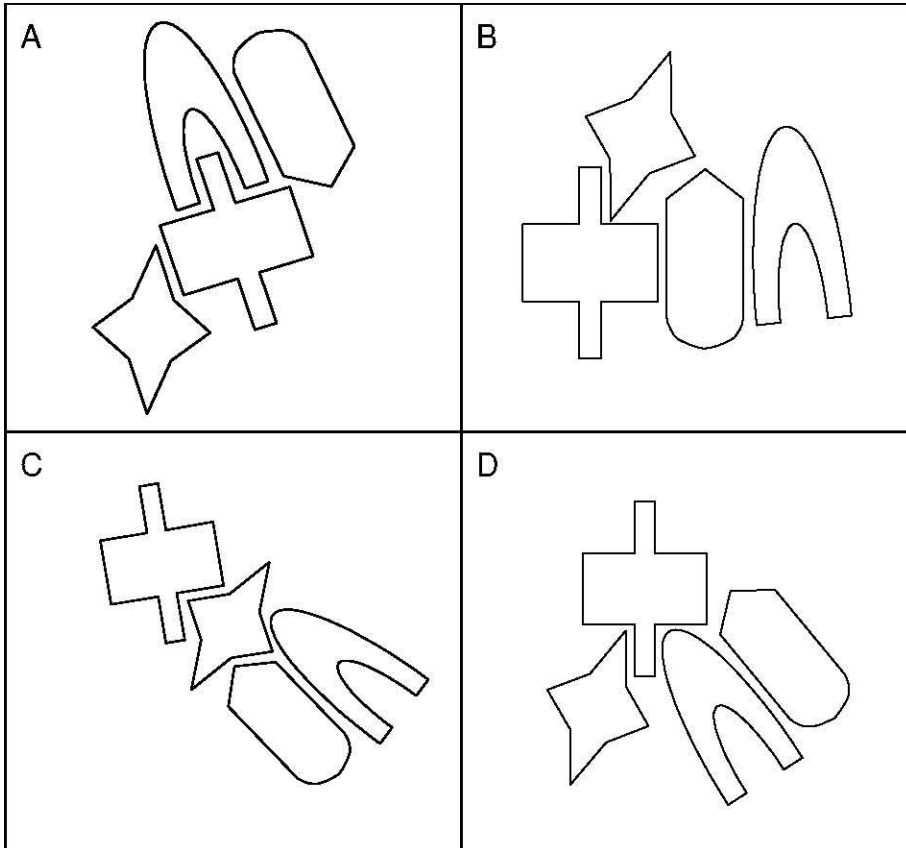
When presented with these questions, it is helpful to examine each of the response choices individually, and within each response choice, examine each shape. It may be helpful to compare each shape of the response choices with the matching shape in the given figure. Look at the numbers or letters that label that shape in the figure. Carefully label that shape in the response choice with the same numbers or letters. After you do this for all of the shapes in the response choices, it will be much easier to see if the numbers or letters match. The response choice that has matching numbers or letters is the correct response choice.

If you come across a response choice that seems to be correct, do not assume that it is in fact the correct choice. Continue this process of labeling the shapes for all of the response choices. It is possible that there is a better response choice. Also, if you continue to label the figures, you may discover an error that was made in labeling a previous response choice.

**Example Question**



1. Which of the choices below represents the parts above correctly assembled?
- a. A
  - b. B
  - \* c. C
  - d. D



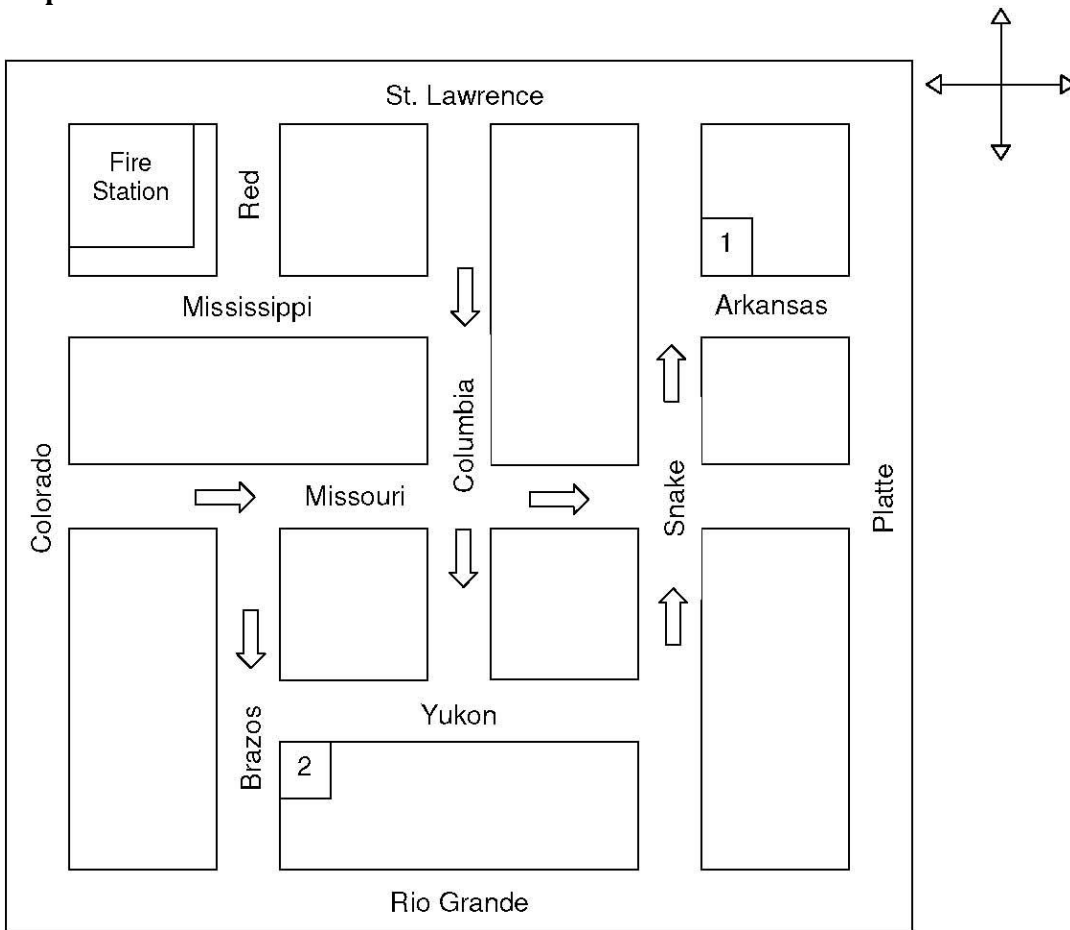
*Maps*

Directional orientation is a well-documented ability for good firefighters. This ability assists firefighters to respond to urgent situations and go from one point to another more efficiently.

You will be presented with a map or plot diagram. Based on this map or diagram, you will answer questions related to the most direct route from one point to the next.

**Example Questions**

**Map 1**



Refer to Map 1 to answer questions 1 -2.

1. From the fire station, you are to drive to the northeast corner of Snake and Arkansas (#1). Without violating any traffic laws, which of the following is the shortest and most direct route to the corner?
  - a. east on St. Lawrence, south on Snake
  - b. south on Colorado, east on Missouri, south on Columbia, east on Yukon, north on Snake
  - \* c. south on Colorado, east on Missouri, north on Snake
  - d. east on St. Lawrence, south on Columbia, east on Yukon, north on Snake
  
2. From the fire station, you are to drive to the southeast corner of Brazos and Yukon (#2). Without violating any traffic laws, which of the following is the shortest and most direct route to the corner?
  - \* a. south on Colorado, east on Missouri, south on Brazos
  - b. south on Colorado, east on Rio Grande, north on Brazos
  - c. east on St. Lawrence, south on Columbia, west on Yukon
  - d. east on St. Lawrence, south on Snake, west on Yukon

**Flexibility of Closure**

In this type of question, a picture of something related to fire suppression is presented along with four possible pictures below. Three of the four are slightly altered. You will be asked to identify which of the four pictures is exactly the same as the original picture given.

Read all instructions carefully. Your strategy should be to eliminate as many of the four choices as possible by focusing on the details of the given pictures, such as numbers, letters, or any other identifying information. Examine the choices one at a time until you have eliminated three of the four pictures. Double check all of the details of the original picture with the one you have chosen and verify that they are the same.

### Example Question

Compare the four pictures at the bottom with the following picture. Choose the one picture of the four choices that is exactly the same as the following picture.



1. Which of the following is exactly the same as the picture above?

- a. A
- b. B
- c. C
- \* d. D



## **BEHAVIORAL QUESTIONS**

This part of the test is also multiple-choice. However, this part of the test is different in that it asks questions about yourself and your life experiences, such as experiences in school, your interests and your attitudes.

For each question, there will be two or more possible answers. You should first read the question and then all of the possible responses. When you have done that, you should pick the one response which you think fits you best.

You should not pick responses which you think "appear right." They may not be the real right ones and, in fact, may produce a negative score. The best approach is to answer every question as honestly as you can and pick the responses which describe you or what you think is best. It is essential that you understand that some of your responses can be verified, and if you don't answer honestly, it may be checked, and your application can be rejected.

### **Sample Instructions**

This part of the test is designed to explore issues relevant to your potential employment. The results of this questionnaire are only one of several factors that will be considered in your application for employment. These results are confidential and will only be reported to those in the hiring process on a need-to-know basis.

Your job application can be rejected if you answer any questions untruthfully or if you fake an answer or skip a question. Please answer all questions. For each question, you must decide which one of the choices is the best answer for you personally. If no one answer seems to be perfect, choose the one answer that is slightly better than the others.

### **Example Question**

1. In high school, the subject I enjoyed studying the most was:
  - a. Math
  - b. History
  - c. Physical Education
  - d. Art
  - e. English