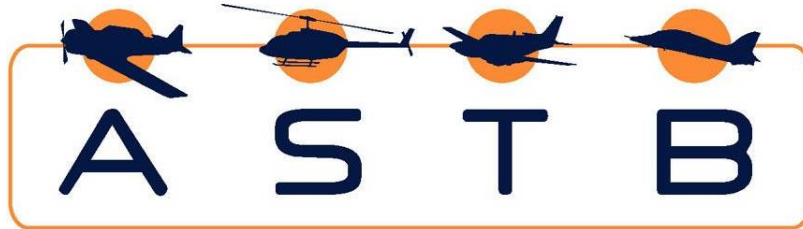


# Aviation Selection Test Battery Sample Questions



The following document provides sample items and information for each subtest of the ASTB-E. The sample items are not meant to provide an exhaustive list of the types of questions that will be found in the test. Instead, these questions are meant to familiarize examinees with the format and content of questions found within each section. Item difficulty ratings are provided for each question, and can be used to gauge how hard a given question is in comparison to similar types of questions typically found on the ASTB. Difficulty ratings range from 'Very Easy' to 'Very Difficult.' All answers are provided at the end of the practice test.

# Math Skills Test

Directions: Each question consists of a problem followed by four possible answer choices. For each question, determine the answer choice that best answers the question.

---

## 1. *Difficult*

$$\frac{-2^2[(-4 - 6^0)(5 - 3^0)]}{|-6| - [ -(-2) ]} =$$

- (A) -5
  - (B) 10
  - (C) 20
  - (D) -20
- 

## 2. *Intermediate*

$$12 \frac{1}{2} \times \frac{1}{5} = ?$$

- (A)  $2 \frac{1}{2}$
  - (B) 4
  - (C)  $5 \frac{1}{4}$
  - (D) 6
- 

## 3. *Easy*

If the hypotenuse of a right triangle is 5 inches long and one of the sides is 4 inches long, how long is the remaining side?

- (A) 2 inches
  - (B) 3 inches
  - (C) 4 inches
  - (D) 9 inches
- 

## 4. *Intermediate*

$$\text{If } (a+1)(a-1) = 3, \text{ then } a^2 =$$

- (A)  $\sqrt{2}$
- (B)  $\sqrt{3}$
- (C) 4
- (D) 9

---

5. *Very Difficult*

Which statement is equivalent to  $2 + 2\log x - \frac{3}{2} \log y$ ?

- (A)  $\log(4x / \frac{3}{2}y)$
- (B)  $\log(x^4/y^{3/2})$
- (C)  $\log(100x^2/y^{3/2})$
- (D)  $2\log(x^2/y^{3/2})$

---

6. *Intermediate*

$$\sqrt{\frac{1}{4}} + \sqrt{\frac{1}{16}} =$$

- (A)  $1/64$
- (B)  $17/256$
- (C)  $5/16$
- (D)  $3/4$

---

7. *Intermediate*

A basketball player averages 21 points per game for the first 8 games of the season. If he is held scoreless in the next two games, how many average points per game must he score in his final 6 games in order to complete the season with an overall average of 21 points per game?

- (A) 21
- (B) 28
- (C) 32
- (D) 42

---

8. *Very Easy*

If  $n$  is a positive even integer, which of the following must also be an even integer?

- (A)  $3n - 2$
- (B)  $4n + 1$
- (C)  $5n + 5$
- (D)  $6n - 1$

---

9. *Intermediate*

A coin purse contains coins with values of 1 cent, 5 cents, 10 cents, 25 cents, and 50 cents. Using each coin at least once, what is the minimum number of coins required to equal the highest possible total less than \$2?

- (A) 10
- (B) 11
- (C) 12
- (D) 13

---

10. *Difficult*

Assume the probability of having a boy is 50% and a girl is 50%. If a family has four children, what is the probability the family has at least two girls?

- (A)  $\frac{5}{16}$
- (B)  $\frac{1}{2}$
- (C)  $\frac{5}{8}$
- (D)  $\frac{11}{16}$

---

11. *Intermediate*

If you flip a coin three times, what is the probability of getting three tails in a row?

- (A) .0625
- (B) .10
- (C) .125
- (D) .333

---

12. *Easy*

A man is paddling a canoe upstream. Assuming he can paddle at 6 miles per hour and the stream is flowing at a rate of 3 miles per hour, after one hour of paddling, how many miles will he have traveled?

- (A) 2
- (B) 3
- (C) 12
- (D) 18

## Reading Skills Test

Directions: Each item consists of a passage which you should assume to be true followed by four possible answer choices. For each item, select the choice that can be inferred only from the passage itself. Some or all of the choices following the passage may be true and reasonable, but only one of them can be derived solely from the information in the passage.

---

### 1. Easy

A storm must pass through different stages before becoming a hurricane. The onset of this process occurs when low pressure air spins inward cyclonically to form the eye of the building storm. During the intermediate stages of development, the storm is first referred to as a tropical depression, later as a tropical storm before increasing in intensity to become a hurricane.

- (A) During the tropical depression stage of hurricane development, the eye is formed by winds moving in a clockwise direction.
  - (B) A hurricane is the most violent of all natural phenomena because the eye of the storm is composed of cyclonic air movement.
  - (C) Tropical storms do not contain eyes because they develop from high pressure air systems.
  - (D) Cyclonic air movement plays a central role in the creation of hurricane force winds.
- 

### 2. Difficult

*United States Navy Regulations* is the principal regulatory document of the Department of the Navy. This document is endowed with the sanction of law as to duty, responsibility, authority, distinctions and relationships of various commands, officials and individuals. Other documents, commands, or instructions issued within the Department of the Navy shall not conflict with, change or amend any provisions of *Navy Regulations*.

- (A) The Department of the Navy has duties, responsibilities, authority, distinctions and relationships of various commands that do not conflict with *Navy Regulations*.
- (B) Documents other than the *Navy Regulations* are endowed with the sanction of law that conflict, change or amend the regulatory document of the Department of the Navy.
- (C) The *Navy Regulations* is endowed with the sanction of law and cannot be conflicted, changed, or amended by other documents, commands, or instructions.
- (D) The principal regulatory document of the Navy may amend other documents, commands, or instructions that may conflict with the *Navy Regulations*.

---

### 3. *Intermediate*

The ombudsman is an appointed representative of the commanding officer and serves in two important roles as both a communications link between the commanding officer and command family members, and as a professionally trained information and referral specialist for the command's families.

- (A) Commanding officers elect ombudsmen and professionally train them to be information and referral specialists.
- (B) The ombudsman serves as a communications link and a trained information and referral specialist.
- (C) The communication link between the commanding officer and command family members is only created through the ombudsman.
- (D) The ombudsman is a commanding officer who has two important roles that aid communication and professional training.

---

### 4. *Difficult*

Military units shall assist civilian communities in providing medical emergency helicopter services beyond the capability of that community. Military units shall not compete for emergency medical evacuation missions in areas where support can be provided by civilian contractors.

- (A) Medical emergency helicopter services are provided through Military units during an emergency in which civilian contractors can provide support.
- (B) Civilian contractors can provide medical emergency helicopter services to aid military units that assist civilian communities during emergencies.
- (C) Military units shall assist civilian contractors in all medical evacuation missions by providing medical emergency helicopter services.
- (D) A military unit may assist civilian communities in providing medical emergency helicopter services if civilian contractors cannot provide support.

---

### 5. *Very Difficult*

The Operational Risk Management (ORM) process exists on three levels. Deciding which of the three levels is necessary will be based upon the situation, proficiency level of personnel, and time and assets available. While it would be preferable to perform a deliberate or in-depth operational risk management process for all evaluations, the time and resources to do so will not always be available. One of the objectives of ORM training is to develop sufficient proficiency in applying the process such that ORM becomes an automatic or intuitive part of our decision-making methodology. In the operational environment, leaders should be able to employ this time-critical process to make sound and timely decisions that generate tempo and facilitate decisive results.

- (A) The most proficient use of the ORM process is related to automatic and intuitive decision-making methodology within an operational environment.
- (B) ORM has been shown to be the most effective when used to develop leadership within an operational environment.
- (C) One of the goals of ORM is to adequately apply the process at a deliberate level across all three levels while maintaining proper time and resource objectives.
- (D) Although a valuable tool, ORM cannot always be applied at an in-depth level due to time and resource constraints.

---

### 6. *Very Easy*

The purpose of the Navy training establishment ashore is to provide training for personnel required by the Fleet when such training is more feasibly and efficiently conducted ashore.

- (A) Training should be conducted ashore when more feasible and efficient.
- (B) Training ashore is more feasible and efficient.
- (C) The Navy training establishment needs personnel ashore.
- (D) The Navy training establishment ashore is required by the Fleet.

---

### 7. *Easy*

The Training and Effectiveness Evaluation is a process of determining the degree to which training objectives have been achieved, regardless of training efficiency.

- (A) An evaluation to check on training efficiency is called the Training and Effectiveness Evaluation.
- (B) Training Evaluation helps determine the efficiency of the training.
- (C) A process exists to review the degree to which training objectives have been met.
- (D) Training objectives can be measured through a process that checks for training evaluation.

# Mechanical Comprehension Test

Directions: Each question consists of a problem followed by three possible answer choices. For each question, determine the answer choice that best answers the question.

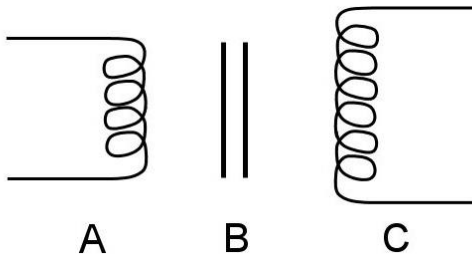
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## 1. Intermediate

The amplitude of an AC wave necessary to have the same relative voltage, current or power as a DC source is known as \_\_\_\_\_.

- (A) Peak amplitude
  - (B) Average amplitude
  - (C) Effective amplitude
- 

## 2. Very Difficult



In a step-up transformer the electricity is taken from \_\_\_\_\_.

- (A) Point A
  - (B) Point B
  - (C) Point C
- 

## 3. Easy

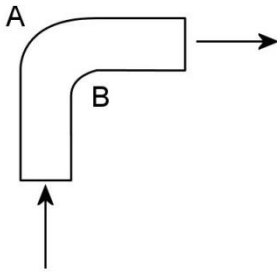
Which of the following is the best example of potential energy?

- (A) A rocket flying through the air
- (B) A roller coaster car moving at a speed of 20.0 m/s
- (C) A heavy ball hanging from a crane



---

4. *Intermediate*



In the drawing, fluid is flowing through the elbow in the direction shown. If holes were drilled at points A and B and pressure is measured, at which point would pressure be lower?

- (A) Point A
- (B) Point B
- (C) No difference (fluid is incompressible)

---

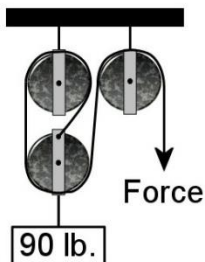
5. *Very Easy*

Why are compact cars less likely to flip over in a turn compared to sports utility vehicles (SUV)?

- (A) Engines in SUVs are more powerful than engines in compact cars
- (B) The center of mass of compact cars is lower than SUVs' center of mass
- (C) SUVs are wider than compact cars

---

6. *Easy*



What force is necessary to lift the 90 lb weight using the pulley system shown?

- (A) 30 lb
- (B) 45 lb
- (C) 90 lb

---

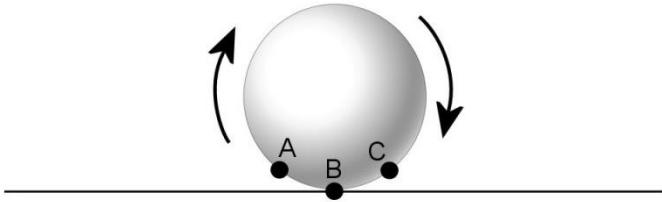
7. *Difficult*

The actual mechanical advantage of a pulley system is defined as the \_\_\_\_\_.

- (A) ratio of the number of supporting strands to the number of moveable pulleys
- (B) the difference between the required input force and the weight lifted
- (C) the ratio of torques between the output pulley and the driving pulley

---

8. *Difficult*



If a ball is rolling down a hill as shown, what can be said about the points indicated at that particular point in motion?

- (A) Point A is moving to the left, Point B is at temporarily at rest, Point C is moving to the left
- (B) Point A is moving vertically upward, Point B is moving to the left, Point C is moving vertically downward
- (C) Point A is moving vertically upward, Point B is at temporarily at rest, Point C is moving vertically downward

---

9. *Intermediate*

A ball is thrown straight up into the air, what is its speed at its highest point?

- (A) Zero
- (B) 9.8m/s
- (C) Not enough information

---

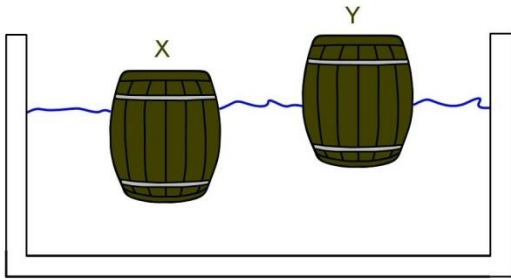
10. *Easy*

If Betty squeezes the middle of an upright, closed plastic soft-drink bottle, where will the greatest increase in pressure occur?

- (A) At the top of the bottle
- (B) At the bottom of the bottle
- (C) Pressure will be equal everywhere in the bottle

---

11. *Intermediate*

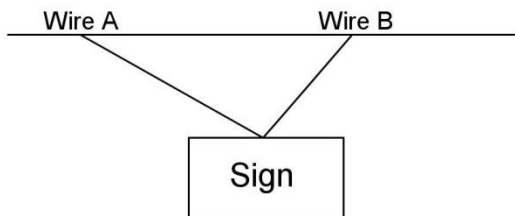


Two identical barrels are exactly half full of different liquids. When placed in water, the barrels float as shown in the figure. What difference in the liquids is most likely to explain the difference in floating levels?

- (A) Liquid X is more dense than Liquid Y
- (B) Liquid X is colder than Liquid Y
- (C) Liquid X is under more pressure than Liquid Y

---

12. *Intermediate*



A sign hangs from a ceiling by two pieces of wire. Which of the two wires bears the greater tension?

- (A) Wire A bears the greater tension
- (B) Wire B bears the greater tension
- (C) Both wires experience equal tension

# Aviation Nautical Information Test

Directions: Each question consists of a problem followed by four possible answer choices. For each question, determine the answer choice that best answers the question.

---

## 1. Easy

Which aircraft generally climbs at a steeper angle?

- (A) Apache AH-64
  - (B) C-130
  - (C) Cessna 310
  - (D) F-4 Phantom
- 

## 2. Very Difficult

The first Digital-Fly-By-Wire (DFBW) was first tested in 1972 on a \_\_\_\_\_.

- (A) F-4
  - (B) F-8
  - (C) A-10
  - (D) X-15
- 

## 3. Difficult

A rating of "AQ" means \_\_\_\_\_.

- (A) Aviation Bombsight & Fire Control Mechanic
  - (B) Aviation Quartermaster
  - (C) Aviation Fire Control Technician
  - (D) Aviation Support Equipment Technician
- 

## 4. Intermediate

Pressure altitude is an altitude measured from the standard sea level pressure of \_\_\_\_\_.

- (A) 29.89
  - (B) 29.92
  - (C) 29.97
  - (D) 29.99
- 

## 5. Difficult

What are the four cycles of an internal combustion aircraft engine?

- (A) Exhaust, compression, ignition, detonation
- (B) Intake, compression, power, exhaust
- (C) Intake, P-lead, power, ignition
- (D) Ignition, compression, power, detonation

---

6. *Very Easy*

Which aircraft would always have the right of way?

- (A) A Boeing 747 declaring an emergency
- (B) A hot air balloon
- (C) An experimental aircraft
- (D) The Goodyear Blimp

---

7. *Intermediate*

Which navy built the first ships called “aviation vessels” solely for launching aerial vehicles?

- (A) The Swedish Navy
- (B) The English Navy
- (C) The German Navy
- (D) The French Navy

## Naval Aviation Trait Facet Inventory



**Directions:** This section of the ASTB-E requires you to respond to a series of paired statements. All statements refer to how you might typically think, feel, and act. Read each statement carefully and decide the extent to which it may describe you, then choose the one statement in each pair that is more like you. There is no need to study or otherwise prepare for this portion of the test. Below are two sets of paired statements which are representative of those that you will be likely to see on the Naval Aviation Trait Facet Inventory:

- I am confident in my ability to learn new skills.
- I am capable of excelling in a variety of

- I am more of a follower than a leader.
- I am almost always running behind schedule.

**NOTE:** There is no correct or incorrect response for each statement pair.

## Performance Based Measures Battery

Background: The Performance Based Measures of the ASTB-E is a battery of processing speed, manual dexterity, and divided-attention-driven assessments, measuring spatial orientation aptitude, dichotic listening aptitude, the ability to perform tracking tasks with a stick-and-throttle set, and the ability to perform several of the aforementioned tasks simultaneously. Examinees wishing to prepare for the Performance Based Measures Battery may find it useful to solve practice mental rotation problems, as well as practice using flight simulator software with a stick-and-throttle set.

## Biographical Inventory with Response Verification

Background: This portion of the ASTB-E may be completed from any web-based computer on the Examinee's own time, and will ask questions pertaining to your previous experiences and background related to success in aviation. There are no correct or incorrect responses to the questions on the Biographical Inventory with Response Verification. You are simply asked to respond honestly to the questions presented.

## Sample Question Answers



### ✦ Math Skills Test

1. C   2. A   3. B   4. C   5. C   6. D  
7. B   8. A   9. B   10. D   11. C   12. B

### ✦ Reading Comprehension Test

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

### ✦ Mechanical Comprehension Test

1. C   2. C   3. C   4. B   5. B   6. A  
7. C   8. C   9. A   10. C   11. A   12. B

### ✦ Aviation and Nautical Information Test

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