

PRINCIPLES OF FLIGHT PRACTICE TEST (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS



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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

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- 1. The air and vortices roll off the back of the wing at which angle, contributing to drag, and is known as what?**
 - A. Downwash
 - B. Upwash
 - C. Sidewash
 - D. Crosswash

- 2. As which parameter increases, induced drag decreases?**
 - A. Altitude
 - B. Airspeed
 - C. Weight
 - D. Mach number

- 3. What term describes the combined load of the airplane itself, the crew, fuel, cargo or baggage?**
 - A. Weight
 - B. Lift
 - C. Thrust
 - D. Drag

- 4. Which statement is true about landing gear?**
 - A. Landing gears can be fixed or retractable
 - B. The third wheel is always in front of the main wheels
 - C. Propellers are part of landing gear
 - D. The firewall provides thrust

- 5. What is the main body section of an airplane that holds crew and passengers or cargo called?**
 - A. Wing
 - B. Fuselage
 - C. Empennage
 - D. Landing Gear

6. During spin recovery, which control input is applied opposite to the spin direction to reduce yaw?
- A. Rudder opposite
 - B. Ailerons opposite
 - C. Elevator down
 - D. Power full
7. Induced drag is present under what condition?
- A. Always when lift is produced
 - B. Only at high speeds
 - C. Only when the wing is dirty
 - D. Never
8. In straight and level flight, which statement describes the net force on the aircraft?
- A. The net force equals zero
 - B. The net moment equals zero
 - C. Lift equals weight
 - D. Thrust equals drag
9. The feature that re-energizes the boundary layer by allowing air to pass through a slot is characteristic of which flap type?
- A. Plain flap
 - B. Split flap
 - C. Slotted flap
 - D. Fowler flap
10. The unit 'G' is an abbreviation for ____.
- A. Gravity
 - B. Gravitational force
 - C. Gravitational constant
 - D. Gram

Answers

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

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Explanations

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1. The air and vortices roll off the back of the wing at which angle, contributing to drag, and is known as what?

- A. Downwash**
- B. Upwash
- C. Sidewash
- D. Crosswash

The air is deflected downward as it flows over and off the wing, producing trailing vortices. The angle of this downward deflection relative to the original flight path is called the downwash angle. This downward deflection tilts the lift vector backward, creating a backward component of force that we recognize as induced drag. So, the air and vortices roll off the back of the wing at a downward angle, known as downwash. Upwash, sidewash, and crosswash describe other directions of deflection that don't apply here.

2. As which parameter increases, induced drag decreases?

- A. Altitude
- B. Airspeed**
- C. Weight
- D. Mach number

Induced drag is the part of drag caused by the wing producing lift, and it is most directly affected by how much lift the wing must generate. In steady level flight the lift must equal the aircraft's weight. As airspeed increases, the wing can generate the same lift with a smaller lift coefficient, because lift is proportional to $\frac{1}{2} \rho V^2 S C_L$. Since C_L decreases with speed, the strength of the wingtip vortices—and thus the induced drag—decreases. In short, higher airspeed means less induced drag. Raising altitude, increasing weight, or changing Mach can affect overall flight conditions and total drag, but they don't produce the same consistent inverse relationship with induced drag that increasing airspeed does.

3. What term describes the combined load of the airplane itself, the crew, fuel, cargo or baggage?

- A. Weight**
- B. Lift
- C. Thrust
- D. Drag

The combined load described is weight. It's the downward force acting on the airplane due to gravity on the entire mass of the aircraft, including the airframe, crew, fuel, cargo, and baggage. This total weight can change as fuel is burned or payload is added or removed, and it directly determines how much lift is needed to fly. In steady level flight, lift must balance weight. If weight increases, more lift (or a higher angle of attack) is required to maintain level flight; if weight decreases, less lift is sufficient. Lift, thrust, and drag are separate forces: lift acts upward, thrust pushes forward, and drag resists the motion. None of those describe the total downward load—the weight.

4. Which statement is true about landing gear?

- A. Landing gears can be fixed or retractable
- B. The third wheel is always in front of the main wheels
- C. Propellers are part of landing gear
- D. The firewall provides thrust

Landing gear choices determine how the aircraft sits on the ground and how drag is managed in flight. Some airplanes use fixed landing gear, which stays down at all times, offering simplicity and durability but creating steady aerodynamic drag. Others use retractable landing gear, which folds into the fuselage or wings to reduce drag during flight, at the cost of added mechanical complexity and weight. That makes the statement about landing gear being fixed or retractable true. The idea that a third wheel must always be in front of the main wheels isn't universal—aircraft come in various configurations, including tailwheel and tricycle gear, so wheel positions aren't a fixed rule. Propellers belong to the propulsion system, not the landing gear. And a firewall isn't for thrust; it's a barrier between the engine compartment and the cockpit to protect occupants from engine heat or fire.

5. What is the main body section of an airplane that holds crew and passengers or cargo called?

- A. Wing
- B. Fuselage
- C. Empennage
- D. Landing Gear

The fuselage is the central body of an airplane that holds the crew, passengers, and cargo. It forms the cabin where people sit, the cockpit where the pilots control the aircraft, and the cargo holds, and it's built to be strong enough to carry the loads of wings and tail while withstanding pressurization in most airliners. The wings are separate structures that provide lift (and often carry fuel), the empennage is the tail assembly that stabilizes and controls the aircraft, and the landing gear supports the airplane on the ground. So, the main body section is the fuselage.

6. During spin recovery, which control input is applied opposite to the spin direction to reduce yaw?

- A. Rudder opposite
- B. Ailerons opposite
- C. Elevator down
- D. Power full

In a spin, the aircraft rotates around the vertical axis due to the stalled wing producing a sustained yaw and roll. To reduce that yaw and stop the rotation, apply the rudder in the direction opposite to the spin. This opposite rudder creates a counteracting yaw moment, slows the rotation, and lets the nose drop so the wings can regain lift and recovery can proceed. Using ailerons affects roll and can worsen the spin if misapplied, the elevator mainly changes pitch rather than yaw, and increasing power can sustain or deepen the spin. So the opposite rudder is the input that directly reduces yaw during spin recovery.

7. Induced drag is present under what condition?

- A. Always when lift is produced
- B. Only at high speeds
- C. Only when the wing is dirty
- D. Never

Induced drag appears whenever lift is being generated by the wing. It comes from the wingtip vortices and downwash created as the wing deflects air downward to produce lift. That energy loss is what we experience as induced drag, so as long as the wing is producing lift, induced drag is present. It's most noticeable at low speeds and high angles of attack (when more lift is required), but it never disappears just because you're flying fast or clean—it's simply reduced at higher speeds.

8. In straight and level flight, which statement describes the net force on the aircraft?

- A. The net force equals zero
- B. The net moment equals zero
- C. Lift equals weight
- D. Thrust equals drag

In straight and level flight the aircraft moves with constant velocity and altitude, so there's no translational acceleration. That means the forces acting on the airplane must add up to zero. The four forces—lift upward and weight downward, thrust forward and drag backward—balance each other when lift equals weight and thrust equals drag, producing a zero net force. This is the direct way to describe the condition of equilibrium for the airplane's motion. The other statements describe parts of that balance (vertical or horizontal) or the rotational balance (net moment), but they don't by themselves guarantee there's no overall translational acceleration. The essence in steady straight-and-level flight is that the net force is zero.

9. The feature that re-energizes the boundary layer by allowing air to pass through a slot is characteristic of which flap type?

- A. Plain flap
- B. Split flap
- C. Slotted flap
- D. Fowler flap

A slot between the flap and the wing allows air from below the wing to flow to the top surface, energizing the boundary layer. This keeps the airflow attached at higher angles of attack and increases lift. Among the flap types, only the slotted flap incorporates this slot feature, enabling that air passage. Plain flaps have no slot, so there's no boundary-layer energization through a gap. Split flaps create a gap below the flap but don't provide a slot to feed air across the top surface. Fowler flaps increase wing area and camber, and while some designs may involve gradual gaps, the defining slot that energizes the boundary layer is the hallmark of a slotted flap.

10. The unit 'G' is an abbreviation for ____.

- A. Gravity
- B. Gravitational force
- C. Gravitational constant
- D. Gram

The main concept being tested is that G is a unit of acceleration tied to gravity. In practice, 1 G equals the acceleration produced by Earth's gravity at the surface, about 9.81 meters per second squared. This unit is used to express how strongly something is accelerating relative to normal gravity—so when you see 2 Gs, that means an acceleration roughly twice Earth's gravity, or about 19.62 m/s². It's not a unit of mass (gram), nor a force (gravitational force), nor the gravitational constant (which is a separate physical constant in Newton's law). The G unit specifically tracks how strongly something is accelerated due to gravity, and it's a convenient way to quantify load factors and aerodynamic or maneuvering forces in flight.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

<https://principlesofflight.examzify.com>

We wish you the very best on your exam journey. You've got this!

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