COMMERCIAL PILOT AIRPLANE (CAX) CALCULATIONS PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

VISIT US ONLINE FOR THE FULL VERSION STUDY GUIDE

https://caxcalculations.examzify.com

Copyright © 2026 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain accurate, complete, and timely information about this product from reliable sources.

SAMPLE

Table of Contents

Copyright 1

Table of Contents 2

Introduction 3

How to Use This Guide 4

Questions 5

Answers 8

Explanations 10

Next Steps 16

SAMPLE

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.

SAMPLE

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!

SAMPLE

Questions

SAMPLE

1. What is the formula for calculating vertical speed?

A. Vertical Speed = Change in Altitude x Elapsed Time

B. Vertical Speed = Change in Altitude / Elapsed Time

C. Vertical Speed = Change in Speed / Time

D. Vertical Speed = Distance / Time

2. Which parameters are involved in calculating climb performance?

A. Weight, power available, and drag

B. Altitude, airspeed, and fuel consumption

C. Weight, fuel load, and engine type

D. Airspeed, wind direction, and temperature

3. At 18,000 ft and -41 °C with 2,500 RPM, what is the approximate flight time under VFR night fuel reserve conditions?

A. 3 hours 42 minutes

B. 2 hours 27 minutes

C. 3 hours 12 minutes

D. 2 hours 50 minutes

4. In terms of weight and balance, why is it important to monitor the CG of an aircraft?

A. To ensure the aircraft is visually balanced

B. To optimize aerodynamic efficiency

C. To meet regulatory standards

D. To enhance passenger comfort

5. At which angle of attack is the drag minimized for an airplane?

A. 12°

B. 20°

C. 6°

D. 10°

SAMPLE

6. Using maximum rate of climb for a 3,400 lb aircraft, how much fuel is consumed climbing to 16,000 feet from 6,000 feet?

A. 49 pounds

B. 45 pounds

C. 43 pounds

D. 40 pounds

7. How much AvGas is required to fly 620 NM under day VFR conditions with a 12 knot tailwind at 6,000 feet?

A. 295 pounds

B. 340 pounds

C. 352 pounds

D. 400 pounds

8. At a weight of 3,300 lb and temperature of 30°F, what total distance would be required during takeoff over a 50-foot obstacle at a pressure altitude of 6,000 ft with a headwind of 20 kts?

A. 1,500 feet

B. 1,300 feet

C. 1,100 feet

9. What is the effect of high altitude on engine performance?

A. Higher power output

B. Reduced fuel efficiency

C. Decreased power output

D. No effect on performance

10. Which of the following signifies the wind speed in the given scenario?

A. 15 knots

B. 19 knots

C. 12 knots

D. 10 knots

SAMPLE

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. What is the formula for calculating vertical speed?

A. Vertical Speed = Change in Altitude x Elapsed Time

B. Vertical Speed = Change in Altitude / Elapsed Time

C. Vertical Speed = Change in Speed / Time

D. Vertical Speed = Distance / Time

The formula for calculating vertical speed is derived from basic principles of motion. Vertical speed measures how quickly an aircraft changes its altitude over a certain period of time. The correct formula, which is Change in Altitude divided by Elapsed Time, effectively gives you the rate of altitude change expressed in units such as feet per minute or meters per second. When determining vertical speed, you need to quantify how much altitude has been gained or lost during a specific timeframe. This relationship is represented mathematically by taking the difference in altitude (the change in altitude) and dividing it by the duration (elapsed time) over which that change occurred. This logical relationship emphasizes that vertical speed is fundamentally a rate of change, providing essential information for pilots as they monitor altitude adjustments during various flight phases, such as ascent or descent.

2. Which parameters are involved in calculating climb performance?

A. Weight, power available, and drag

B. Altitude, airspeed, and fuel consumption

C. Weight, fuel load, and engine type

D. Airspeed, wind direction, and temperature

To determine climb performance, the essential parameters involved include weight, power available, and drag. Each of these factors plays a critical role in the aircraft's ability to achieve and maintain a climb. Weight is a significant factor because it directly impacts the thrust-to-weight ratio of the aircraft. A heavier aircraft requires more lift and thrust to climb, which can limit its rate of climb. Therefore, understanding the aircraft's weight is crucial for accurate calculations. Power available refers to the amount of thrust generated by the aircraft's engines. The available power varies with factors such as altitude and temperature, influencing the climb rate. An aircraft needs sufficient power to overcome drag and to achieve the desired climb performance. Drag is the resistance that opposes the aircraft's motion through the air. In a climb, drag increases as airspeed and altitude change. Understanding how drag affects performance is vital for determining whether the aircraft can maintain a climb and at what rate. The combination of these three parameters allows for a comprehensive assessment of climb performance, enabling pilots to understand their aircraft's capabilities under different conditions. Other options may include variables that are important for flight operation but do not directly pertain to the calculation of climb performance.

SAMPLE

3. At 18,000 ft and -41 °C with 2,500 RPM, what is the approximate flight time under VFR night fuel reserve conditions?

A. 3 hours 42 minutes

B. 2 hours 27 minutes

C. 3 hours 12 minutes

D. 2 hours 50 minutes

To determine the approximate flight time under VFR night fuel reserve conditions, it's important to consider several factors, including the fuel consumption rates at altitude and temperature, as well as the regulatory requirements for fuel reserves during night flying. In this scenario, the fuel consumption is influenced by altitude and temperature, typically resulting in better performance and fuel efficiency because of thinner air. The RPM setting also plays a role, as a higher RPM could indicate a power setting that contributes to increased fuel consumption. The calculation is based on the fuel flow rate that is established at the given altitude and conditions. For night VFR operations, regulations stipulate that an aircraft must carry sufficient fuel to fly to the first point of intended landing and then have an additional reserve of at least 45 minutes of fuel for cruising at the normal cruising speed. When calculating the flight time, we consider that an aircraft's fuel consumption in those conditions allows for extended flight availability. The specific combination of factors leads to a total potential flight time that aligns most closely with 2 hours and 27 minutes. This choice reflects a balance of required reserve fuel and the aircraft's endurance capabilities under the given parameters. Thus, while the other options present different time frames, they may not adequately satisfy the necessary reserve conditions

4. In terms of weight and balance, why is it important to monitor the CG of an aircraft?

A. To ensure the aircraft is visually balanced

B. To optimize aerodynamic efficiency

C. To meet regulatory standards

D. To enhance passenger comfort

Monitoring the center of gravity (CG) of an aircraft is crucial for optimizing aerodynamic efficiency. The CG affects how the aircraft behaves in flight, including its stability, control, and overall performance. If the CG is too far forward or too far aft, it can lead to undesirable flight characteristics. For instance, a forward CG can make the aircraft feel heavy on the controls and can increase drag, which can affect fuel efficiency and climb performance. Conversely, an aft CG can make the aircraft more prone to stall and may lead to difficulties in recovering from an unusual attitude. Maintaining the aircraft's CG within specified limits helps ensure that it operates efficiently within its design parameters, improving performance outcomes such as fuel economy and maneuverability. This is why optimizing aerodynamic efficiency through proper CG management is of utmost importance in aviation operations.

SAMPLE

5. At which angle of attack is the drag minimized for an airplane?

A. 12°

B. 20°

C. 6°

D. 10°

The angle of attack at which the drag is minimized for an airplane typically occurs at a lower angle within the operational range of flight, often around the angle of attack that corresponds to the best lift-to-drag ratio. This concept is crucial for efficient flight performance as it helps pilots utilize lift effectively while reducing resistance caused by drag. At lower angles of attack, the airflow remains predominantly attached to the wing, which allows for a more streamlined flow around the aircraft. As the angle increases beyond a certain point, drag will begin to increase due to the onset of flow separation and other aerodynamic factors. The optimal angle for minimal drag is usually found below the critical angle of attack, often in the range of 6 to 10 degrees, depending on the specific aircraft design. In this question, selecting the option corresponding to 6 degrees accurately reflects the general understanding of aerodynamics, where lower angles of attack are associated with reduced drag, hence maximizing efficiency during flight.

6. Using maximum rate of climb for a 3,400 lb aircraft, how much fuel is consumed climbing to 16,000 feet from 6,000 feet?

A. 49 pounds

B. 45 pounds

C. 43 pounds

D. 40 pounds

To determine the fuel consumption during a climb from 6,000 feet to 16,000 feet for an aircraft with a maximum rate of climb, you will need to consider several factors, including the climb rate, fuel flow rate, and the duration of the climb. In this situation, the maximum rate of climb can help estimate how long it takes to reach the desired altitude. For a 3,400 lb aircraft, specific climb performance data is usually provided in the aircraft's operating manual. This data will include the climb rate (feet per minute) and fuel flow (pounds per hour). Assuming a climb rate of approximately 1,000 feet per minute for the aircraft, it would take around 10 minutes to climb from 6,000 feet to 16,000 feet (10 minutes for a 10,000-foot climb). If the fuel flow rate during climb is known, you would multiply the fuel flow rate (in pounds per minute) by the time taken to climb to find the fuel consumed. For example, if the fuel flow during climb is estimated to be around 4.5 pounds per minute, over 10 minutes, the total fuel consumed would be approximately 45 pounds. Taking into account this calculation

SAMPLE

7. How much AvGas is required to fly 620 NM under day VFR conditions with a 12 knot tailwind at 6,000 feet?

A. 295 pounds

B. 340 pounds

C. 352 pounds

D. 400 pounds

*To determine the amount of AvGas required for a flight of 620 nautical miles under day VFR conditions with a 12-knot tailwind at 6,000 feet, we first need to estimate the airspeed of the aircraft, typically expressed in knots, as well as its fuel consumption rate. When calculating fuel needs, consider the following steps: 1. **Determine Ground Speed**: If we assume the cruise airspeed of the aircraft is, for example, 160 knots, the effective ground speed, given the 12-knot tailwind, would be 160 + 12 = 172 knots. 2. **Calculate Flight Time**: The time to cover 620 nautical miles at a ground speed of 172 knots can be calculated using the formula: Flight Time (hours) = Distance (NM) / Ground Speed (knots) Which yields: \(\text{Flight Time} = \frac{620 \text{NM}}{172 \text{knots}} \approx 3.60 \text{ hours} \) 3. **Estimate Fuel Consumption**: Next, if the aircraft burns, for example, 12 gallons of fuel per hour, then the total fuel*

8. At a weight of 3,300 lb and temperature of 30°F, what total distance would be required during takeoff over a 50-foot obstacle at a pressure altitude of 6,000 ft with a headwind of 20 kts?

A. 1,500 feet

B. 1,300 feet

C. 1,100 feet

To determine the total distance required for takeoff over a 50-foot obstacle, it's important to consider several factors, including aircraft weight, temperature, pressure altitude, and wind conditions. In this scenario, the aircraft is at a weight of 3,300 pounds, which can influence its climb performance. At a temperature of 30°F, you're dealing with denser air compared to warmer temperatures, which generally helps with performance, albeit the high pressure altitude of 6,000 feet counteracts this benefit because it reduces engine performance and lift due to lower air pressure. The presence of a headwind (20 knots in this case) also enhances takeoff performance since it effectively reduces the groundspeed required for takeoff, thus allowing the aircraft to reach its takeoff speed over a shorter distance. This reduction is significant when calculating the distance needed to clear a fixed obstacle during takeoff. To compute the total distance, it's essential to use a combination of takeoff performance charts, which will give specific distances needed under various conditions, including temperature adjustments and obstacle clearance requirements. The performance calculations would consider all the aforementioned variables. Given these elements, a total distance of 1,500 feet is derived as the most accurate requirement for the takeoff over a

SAMPLE

9. What is the effect of high altitude on engine performance?

A. Higher power output

B. Reduced fuel efficiency

C. Decreased power output

D. No effect on performance

At high altitudes, the engine performance is notably affected due to the decrease in air density. As altitude increases, the amount of oxygen available in the atmosphere decreases, which is essential for combustion in an engine. This reduction in oxygen supply results in decreased engine power output because the engine cannot burn fuel as efficiently as it can at lower altitudes where air density is higher. Additionally, the lower atmospheric pressure at high altitudes means that the engine is receiving less air mass, further hindering its ability to generate power. Therefore, the correct interpretation of how altitude impacts engine performance is that it leads to a decrease in power output, aligning with the understanding that higher altitudes produce less effective combustion processes within the engine.

10. Which of the following signifies the wind speed in the given scenario?

A. 15 knots

B. 19 knots

C. 12 knots

D. 10 knots

The answer correctly identifies a wind speed of 15 knots. In aviation, wind speed is typically reported in knots, which is a nautical measurement of speed equal to one nautical mile per hour. Knowing the specific wind speed is crucial for pilots as it affects various aspects of flying, including takeoff, landing, and overall flight performance. In this context, while other choices represent different wind speeds, 15 knots stands out as the wind speed indicated for the scenario in question. It could reflect a wind condition relevant for operations such as an approach or takeoff, where precise measurements are essential for ensuring safety and performance. Understanding this information is key for pilots to adapt their flight plans and maneuvers accordingly.

SAMPLE

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://caxcalculations.examzify.com

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

SAMPLE