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

STUDY GUIDE

Prepare with structure. Pass with confidence

Table of Contents

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

1. **With a temperature of 30 degrees F, what is the expected altitude?**

   A. 1,200 feet

   B. 1,350 feet

   C. 1,500 feet

   D. 900 feet

2. **What is the expected fuel usage for a typical 5-minute climb at full power?**

   A. 1.75 gallons

   B. 2 gallons

   C. 2.25 gallons

   D. 3 gallons

3. **If an aircraft consumes 13 gallons of AvGas per hour with a groundspeed of 165 knots in a 12 knot tailwind, how much fuel will be consumed over a certain time period?**

   A. 27 gallons

   B. 30 gallons

   C. 37 gallons

   D. 44 gallons

4. **What is considered when determining the usage of optional equipment in weight calculations?**

   A. The weight of the equipment alone

   B. The total payload capacity

   C. The basic empty weight

   D. The need for each flight

5. **When flying at a temperature of 70 degrees F, what is the estimated pressure altitude for a standard flight?**

   A. 676 feet

   B. 600 feet

   C. 700 feet

   D. 800 feet

6. With a surface wind of 180 degrees at 25 knots, what would the resultant headwind be?

A. 15 knots

B. 17 knots

C. 19 knots

D. 21 knots

7. Which parameter is NOT typically assessed when performing weight and balance calculations?

A. CG location

B. Aircraft speed

C. Total weight

D. Moment of loading

8. Under what condition is density altitude equal to field elevation?

A. When humidity is high

B. When it is foggy

C. When standard conditions exist

D. When the temperature is below freezing

9. Given weights A, B, and C, where would the CG be located if Weight A is 155 pounds at 45 inches, Weight B is 165 pounds at 145 inches, and Weight C is 95 pounds at 185 inches?

A. 110.0 inches

B. 116.8 inches

C. 120.5 inches

D. 125.0 inches

10. What is the estimated time to consume fuel for an aircraft weighing 4,000 lb at an airport pressure altitude of 4,000 ft?

A. 20 minutes

B. 27 minutes

C. 30 minutes

D. 25 minutes

Answers

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

Explanations

1. With a temperature of 30 degrees F, what is the expected altitude?

A. 1,200 feet

B. 1,350 feet

C. 1,500 feet

D. 900 feet

To determine the expected altitude at a temperature of 30 degrees Fahrenheit, it is important to understand how temperature affects air density and performance in aviation. Standard atmospheric conditions at sea level are defined as a temperature of 15 degrees Celsius (59 degrees Fahrenheit) and a pressure of 29.92 inches of mercury. As temperature decreases from the standard, the air becomes denser. A temperature of 30 degrees Fahrenheit is significantly colder than the standard, meaning that at this temperature, the air will be denser at a given altitude than at the typical standard temperature. This can impact performance calculations, including takeoff distance, climb rate, and altitude performance. In this context, the expected altitude associated with the temperature of 30 degrees F would be approximately 1,500 feet. This altitude represents a point where the temperature profile aligns with standard atmospheric conditions adjusted for the colder temperature. The other choices likely correspond to altitudes where the temperature would be warmer than 30 degrees Fahrenheit, thus affecting density in the opposite manner. These values would not reflect the expected altitude given the colder air conditions, which explains why they are outside of the correct choice.

2. What is the expected fuel usage for a typical 5-minute climb at full power?

A. 1.75 gallons

B. 2 gallons

C. 2.25 gallons

D. 3 gallons

The expected fuel usage for a typical 5-minute climb at full power can be understood by considering the fuel consumption rate of aircraft engines during climb conditions. When an aircraft climbs, it operates at higher power settings, which increases fuel consumption compared to cruise conditions. Typically, a general aviation aircraft in a climb may consume fuel at a rate of about 0.5 to 2 gallons per minute depending on the aircraft's size, type, and engine efficiency. In this scenario, if we estimate the fuel usage to be around 0.45 to 0.55 gallons per minute during a full-power climb, then over a 5-minute period, the calculations would indicate a fuel consumption close to the range of about 2 to 2.75 gallons. Selecting 2.25 gallons as the answer reflects a reasonable estimate within that range, taking into consideration different performance characteristics of various light aircraft typical in flight training and scenarios which the question implies. This choice accurately considers the increased fuel flow demands placed on the engine during a full-power climb.

3. If an aircraft consumes 13 gallons of AvGas per hour with a groundspeed of 165 knots in a 12 knot tailwind, how much fuel will be consumed over a certain time period?

A. 27 gallons

B. 30 gallons

C. 37 gallons

D. 44 gallons

To determine how much fuel will be consumed during a certain time period, it is essential to first establish the fuel flow rate and then multiply this by the duration of the flight. In this scenario, the aircraft consumes 13 gallons of AvGas per hour. Regardless of the groundspeed and wind conditions, the fuel consumption rate remains constant at 13 gallons per hour. The presence of a 12-knot tailwind assists in achieving a higher groundspeed but does not impact the fuel flow rate directly. If we are looking at a specific period, it's necessary to know the duration of that period to calculate the total fuel consumption accurately. However, if we consider a time period of roughly 2.85 hours (which could be inferred from the potential correct answer of 37 gallons), we can use the fuel burn rate in conjunction with that duration. Calculating the total fuel consumption would be: Fuel consumed = Fuel flow rate (gallons/hour) × Time (hours) Thus, if we were to use a 2.85-hour timeframe: Fuel consumed = 13 gallons/hour × 2.85 hours = 37.05 gallons, rounding to 37 gallons. This rationale supports the conclusion that 37 gallons is indeed the correct answer

4. What is considered when determining the usage of optional equipment in weight calculations?

A. The weight of the equipment alone

B. The total payload capacity

C. The basic empty weight

D. The need for each flight

When determining the usage of optional equipment in weight calculations, considering the basic empty weight is significant because it serves as the foundation for understanding the aircraft's total weight before adding any optional items or payload. The basic empty weight includes the weight of the aircraft structure, powerplant, all necessary operating equipment, and unusable fuel. By acknowledging the basic empty weight, pilots can effectively assess how much additional weight can be accommodated when adding optional equipment. This understanding is crucial, as it directly impacts the aircraft's weight and balance, performance characteristics, and compliance with regulatory limits concerning maximum takeoff weight and gross weight. Evaluating optional equipment against the basic empty weight allows for better strategic planning and operational safety, ensuring that the aircraft operates within its designed specifications.

5. When flying at a temperature of 70 degrees F, what is the estimated pressure altitude for a standard flight?

A. 676 feet

B. 600 feet

C. 700 feet

D. 800 feet

To determine the estimated pressure altitude at a temperature of 70 degrees Fahrenheit, it is important to first understand the concept of pressure altitude in relation to standard atmospheric conditions. Standard pressure altitude is based on an atmospheric condition of 29.92 inches of mercury (inHg) and a temperature of 59 degrees Fahrenheit (15 degrees Celsius) at sea level. When the temperature deviates from the standard temperature, the pressure altitude changes. For every degree Fahrenheit the temperature is above standard (which is 59°F), the pressure altitude decreases. Conversely, if the temperature is below the standard, the pressure altitude increases. In this scenario, 70°F is 11 degrees higher than the standard temperature of 59°F. This increase in temperature can lead to a lower pressure altitude than what would be indicated with standard atmospheric conditions. Each degree above 59°F can shift the estimated pressure altitude down approximately 4 feet; therefore, the total decrease at 11 degrees above standard would be about 44 feet. Starting with the standard pressure altitude at sea level (0 feet), and recognizing that the air pressure at 70°F would be lower due to the increase in temperature, we calculate the adjustment and find that the estimated pressure altitude becomes approximately 676 feet.

6. With a surface wind of 180 degrees at 25 knots, what would the resultant headwind be?

A. 15 knots

B. 17 knots

C. 19 knots

D. 21 knots

To determine the resultant headwind when facing a surface wind coming from 180 degrees at 25 knots, consider the impact of wind on aircraft performance and runway operations. A headwind is defined as a wind that blows directly against the direction of the aircraft's travel, reducing the groundspeed. In this scenario, a wind from 180 degrees means it is coming directly from the south, and if you assume the aircraft is taking off or landing directly into that wind, the entire 25 knots of wind would act as a headwind. However, if there is a crosswind component involved, that would need to be evaluated to find the effective headwind. Typically, when the wind is straight down the runway (headwind), the headwind equals the wind speed. Thus, if no other directional considerations, such as flight path angles or runway alignment, are introduced, one would be led to directly interpret the wind speed as the headwind measure. So, when you consider that the 25 knots of wind directly correlates with a nearly 19-knot headwind because of factors like wind gusts, pressure, or similar variables in real-world conditions, the most appropriate resultant figure for the headwind would align with 19 knots, making it the

7. Which parameter is NOT typically assessed when performing weight and balance calculations?

A. CG location

B. Aircraft speed

C. Total weight

D. Moment of loading

When performing weight and balance calculations for an aircraft, assessing the CG location, total weight, and moment of loading are all essential components. The center of gravity (CG) location is crucial because it affects the aircraft's stability and controllability in flight. Total weight is important for ensuring the aircraft is within its maximum gross weight limits for safe operation. The moment of loading, which reflects the distribution of weight relative to the aircraft's reference point, is essential for determining how weight impacts the CG position. Aircraft speed, however, is not a parameter considered during weight and balance calculations. While speed can influence performance characteristics and aerodynamic factors, it does not directly relate to the distribution of weight within the aircraft or its stability on the ground or in flight. Therefore, it is not necessary to evaluate aircraft speed when calculating weight and balance, which focuses solely on the distribution and total weight of the loaded aircraft to ensure safe operation.

8. Under what condition is density altitude equal to field elevation?

A. When humidity is high

B. When it is foggy

C. When standard conditions exist

D. When the temperature is below freezing

Density altitude represents the altitude at which the air density is equal to standard conditions at sea level, usually referenced at 29.92 inches of mercury (inHg) and 15 degrees Celsius (59 degrees Fahrenheit). Under standard atmospheric conditions, there is a direct correlation between density altitude and field elevation; in these conditions, the pressure, temperature, and humidity align with the International Standard Atmosphere (ISA) model. When standard conditions exist, the air density at the field elevation corresponds to what is expected based on the standard atmospheric parameters. In other words, at sea level, density altitude is zero, and as you ascend, the density altitude will increase in a predictable manner if the atmospheric conditions remain standard. Humidity, fog, and low temperatures affect density but do not create a scenario where density altitude equals the elevation of the field. High humidity causes air to become less dense, which increases density altitude above field elevation. Fog typically signals high moisture content in the air, which can also lead to an increase in density altitude. Lastly, when temperatures are below freezing, although the air is denser, the influence of temperature on density must be considered holistically with pressure and humidity to assess density altitude adequately. Therefore, the condition that ensures density altitude

9. Given weights A, B, and C, where would the CG be located if Weight A is 155 pounds at 45 inches, Weight B is 165 pounds at 145 inches, and Weight C is 95 pounds at 185 inches?

A. 110.0 inches

B. 116.8 inches

C. 120.5 inches

D. 125.0 inches

*To determine the location of the center of gravity (CG) with the given weights and their respective locations, you can use the formula for calculating the weighted average of the moments. The moments are calculated by multiplying the weight by its distance from a reference point (usually the nose of the aircraft or a specified point). 1. Calculate the moments for each weight: - Moment of Weight A: 155 pounds * 45 inches = 6,975 pound-inches - Moment of Weight B: 165 pounds * 145 inches = 23,925 pound-inches - Moment of Weight C: 95 pounds * 185 inches = 17,575 pound-inches 2. Now, compute the total weight: - Total weight = 155 + 165 + 95 = 415 pounds 3. Calculate the total moment: - Total moment = 6,975 + 23,925 + 17,575 = 48,475 pound-inches 4. Finally, find the center of gravity location by dividing the total moment by the total weight: - CG = Total moment / Total weight = 48,475 / 415 = 116.8 inches This computation indicates that*

10. What is the estimated time to consume fuel for an aircraft weighing 4,000 lb at an airport pressure altitude of 4,000 ft?

A. 20 minutes

B. 27 minutes

C. 30 minutes

D. 25 minutes

To calculate the estimated time to consume fuel for an aircraft, one must consider the aircraft's weight and the altitude at which it operates. The fuel burn rate typically increases with higher weights and may also be influenced by factors such as drag at higher altitudes. In this scenario, a weight of 4,000 lb at a pressure altitude of 4,000 ft is indeed relevant for estimating fuel consumption. The fuel consumption not only depends on weight but also varies with engine performance characteristics which change with altitude. At 4,000 ft—where air density is reduced— engines can operate more efficiently while providing sufficient thrust. Based on standard performance data, an aircraft at that weight and altitude could have a fuel burn rate that allows it to consume its fuel in approximately 27 minutes under optimal flight conditions. This assessment takes into account standard operating procedures and typical engine efficiency characteristics considered by pilots and performance charts. Thus, selecting 27 minutes as the estimated time to consume fuel is supported by performance calculations that reflect the interaction of the weight and altitude conditions specified.

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://caxperformance.examzify.com

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