T E M A: 0319 INSTRUCTOR_ADVANCED_04_AIRCRAFT PERFORMANCE

COD_PREG:	P R E G U N T A:	RPTA:
6741	Fig. 24 Determine the density altitude. Airport elevation ..... 5,515 ft OAT..... 30° C Altimeter setting ..... 29.40" Hg **OPCION A:** 6,000 feet. **OPCION B:** 8,450 feet. **OPCION C:** 9,100 feet.	C
6742	Fig. 24 Determine the density altitude. Airport elevation ..... 3,795 ft OAT ..... 24 °C Altimeter setting ..... 29.70" Hg **OPCION A:** 5,700 feet. **OPCION B:** 5,900 feet. **OPCION C:** 4,000 feet.	B
6743	Fig. 24 Determine the density altitude. Airport elevation ..... 3,450 ft OAT ..... 35 °C Altimeter setting ..... 30.40" Hg **OPCION A:** 3,400 feet. **OPCION B:** 6,650 feet. **OPCION C:** 5,950 feet.	C
6744	Density altitude increases with **OPCION A:** an increase in temperature only. **OPCION B:** increases in pressure, temperature, and moisture content of the air **OPCION C:** increases in temperature and moisture content of the air, and a decrease in pressure.	C
6745	What would increase the density altitude at a given airport? **OPCION A:** An increase in air temperature. **OPCION B:** A decrease in relative humidity. **OPCION C:** An increase in atmospheric pressure.	A
6746	Which statement is true regarding takeoff performance with high density altitude conditions? **OPCION A:** The acceleration rate will increase since the lighter air creates less drag. **OPCION B:** The acceleration rate is slower because the engine and propeller efficiency is reduced. **OPCION C:** A higher-than-normal indicated airspeed is required to produce sufficient lift since the air is less dense.	B
6747	If the atmospheric pressure and temperature remain the same, how would an increase in humidity affect takeoff performance? **OPCION A:** Longer takeoff distance; the air is more dense. **OPCION B:** Longer takeoff distance; the air is less dense. **OPCION C:** Shorter takeoff distance; the air is more dense.	B
6749	What effect does an uphill runway slope have upon takeoff performance? **OPCION A:** Decreases takeoff speed. **OPCION B:** Increases takeoff distance. **OPCION C:** Decreases takeoff distance.	B

6750 Fig. 25 B
What would be the indicated stall speed in a 30° banked turn with the gear down and flaps set at 15°?
OPCION A: 77 KIAS.
OPCION B: 82 KIAS.
OPCION C: 88 KIAS.

6751 Fig. 25 B
What would be the indicated stall speed in a 60° banked turn with the gear and flaps up?
OPCION A: 110 KIAS.
OPCION B: 117 KIAS.
OPCION C: 121 KIAS.

6752 Fig. 25 B
What would be the indicated stall speed during a 40° banked turn with the gear down and flaps set at 45°?
OPCION A: 81 KIAS.
OPCION B: 83 KIAS.
OPCION C: 89 KIAS.

6753 Fig. 26 C
Determine the ground roll required for takeoff.

Temperature ..... 24 °C
Pressure altitude ..... 2,500 ft
Weight ..... 2,400 lb
Headwind ..... 25 kts
OPCION A: 256 feet.
OPCION B: 370 feet.
OPCION C: 230 feet.

6754 Fig. 26 B
Determine the ground roll required for takeoff.

Temperature ..... 25 °C
Pressure altitude ..... 2,000 ft
Weight ..... 2,200 lb
Headwind ..... 15 kts
OPCION A: 205 feet.
OPCION B: 261 feet.
OPCION C: 237 feet.

6755 Fig. 26 B
Determine the takeoff distance required to clear a 50-foot obstacle.

Temperature ..... 23 °C
Pressure altitude ..... 3,000 ft
Weight ..... 2,400 lb
Headwind ..... 15 kts
OPCION A: 754 feet.
OPCION B: 718 feet.
OPCION C: 653 feet.

6756 Fig. 26 C

Determine the takeoff distance required to clear a 50-foot obstacle.

Temperature ..... 3 °C
Pressure altitude ..... 6,000 ft
Weight ..... 3,000 lb
Headwind ..... 15 kts

OPCION A: 1,464 feet.
OPCION B: 1,215 feet.
OPCION C: 1,331 feet.

6757 Fig. 27 C

The indicated airspeed that would give the greatest gain in altitude in a unit of time at 3,200 feet is determined to be

OPCION A: 93 KIAS.
OPCION B: 94 KIAS.
OPCION C: 112 KIAS.

6758 Fig. 27 A

What indicated airspeed at 3,000 feet would result in the greatest increase in altitude for a given distance?

OPCION A: 94 KIAS.
OPCION B: 113 KIAS.
OPCION C: 115 KIAS.

6759 Fig. 27 C

To maintain the best rate of climb, the indicated speed should be

OPCION A: maintained at a constant value during the climb.
OPCION B: adjusted to maintain the specified rate of climb.
OPCION C: reduced approximately .8 knots per 1,000 feet of altitude.

6760 In a propeller-driven airplane, maximum range occurs at C

OPCION A: minimum drag required.
OPCION B: minimum power required.
OPCION C: maximum lift/drag ratio.

6761 Fig. 28 A

Determine the approximate total distance required to clear a 50-foot obstacle.

Temperature ..... 20 °C
Pressure altitude ..... 1,000 ft
Surface ..... sod
Weight ..... 5,300 lb
Wind ..... 15 kts headwind

OPCION A: 1,724 feet.
OPCION B: 1,816 feet.
OPCION C: 2,061 feet.

6762 Determine the approximate total distance required to clear a 50-foot obstacle. C

Temperature ..... 25 °C
Pressure altitude ..... 2,500 ft
Surface ..... asphalt
Weight ..... 5,500 lb
Wind ..... 2 kts tailwind

OPCION A: 2,228 feet.
OPCION B: 2,294 feet.
OPCION C: 2,462 feet.

6763 Fig. 28 B

Determine the approximate total distance required to clear a 50-foot obstacle.

Temperature ..... 35 °C
Pressure altitude ..... 3,000 ft
Surface ..... sod
Weight ..... 5,100 lb
Wind ..... 20 kts headwind

OPCION A: 1,969 feet.
OPCION B: 2,023 feet.
OPCION C: 2,289 feet.

6764 What is the approximate glide distance? C

Height above terrain ..... 5,500 ft
Tailwind ..... 10 kts

OPCION A: 11 miles.
OPCION B: 12 miles.
OPCION C: 13 miles.

6765 Fig. 29 C

What is the approximate glide distance?

Height above terrain ..... 10,500 ft
Tailwind ..... 20 kts

OPCION A: 24 miles.
OPCION B: 26 miles.
OPCION C: 28 miles.

6766 Fig. 29 A

What is the approximate glide distance?

Height above terrain ..... 17,500 ft
Tailwind ..... 30 kts

OPCION A: 11.5 miles.
OPCION B: 16.5 miles.
OPCION C: 21.5 miles.

6767 Fig. 30 B

Determine the approximate crosswind component.

Landing Rwy 30
Wind ..... 020° at 15 kts

OPCION A: 4 knots.
OPCION B: 15 knots.
OPCION C: 22 knots.

6768 Fig. 30 B

Determine the approximate crosswind component.

Landing Rwy 03
Wind ..... 060° at 35 kts

OPCION A: 12 knots.
OPCION B: 18 knots.
OPCION C: 22 knots.

6769 Fig. 30 B

Determine the approximate crosswind component.

Landing Rwy 22
Wind ..... 260° at 23 kts

OPCION A: 10 knots.
OPCION B: 15 knots.
OPCION C: 17 knots.

6770 Fig. 30 C

Using a maximum demonstrated crosswind component equal to 0.2 Vso, what is a pilot able to determine?

Vso ..... 70 knots
Landing Rwy 35
Wind ..... 300 at 20 kts

OPCION A: Headwind component is excessive.
OPCION B: Headwind component exceeds the crosswind component.
OPCION C: Maximum demonstrated crosswind component is exceeded.

6771 Fig. 30 B

Using a maximum demonstrated crosswind component equal to 0.2 Vso, what is a pilot able to determine?

Vso ..... 60 knots
Landing Rwy 12
Wind ..... 150 at 20 kts

OPCION A: Headwind component is excessive.
OPCION B: Crosswind component is within safe limits.
OPCION C: Maximum demonstrated crosswind component is exceeded.

6772 Fig. 30 C

Using a maximum demonstrated crosswind component equal to 0.2 Vso, what is a pilot able to determine?

Vso ..... 65 knots
Landing Rwy 17
Wind ..... 200 at 30 kts

OPCION A: Crosswind component is within safe limits.
OPCION B: Crosswind component exceeds the headwind component.
OPCION C: Maximum demonstrated crosswind component is exceeded.

6773 Fig. 31 B

What is the total landing distance over a 50-foot obstacle?

Temperature ..... 15°C
Pressure altitude ..... 4,000 ft
Weight ..... 3,000 lb
Headwind ..... 22 kts

OPCION A: 1,250 feet.
OPCION B: 1,175 feet.
OPCION C: 1,050 feet.

6775 Fig. 31 C

What is the total landing distance over a 50-foot obstacle?

Temperature ..... 35°C
Pressure altitude ..... 2,000 ft
Weight ..... 3,400 lb
Headwind ..... 10 kts

OPCION A: 1,650 feet.
OPCION B: 1,575 feet.
OPCION C: 1,475 feet.

6776 Fig. 32 B
How should the 1,000-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 15 inches to the right.
OPCION B: 5 inches to the right.
OPCION C: 5 inches to the left.

6777 Fig. 32 B
How should the 500-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 10 inches to the left.
OPCION B: 10 inches to the right.
OPCION C: 30 inches to the right.

6778 Fig. 33 A
How should the 250-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 2 inches to the left.
OPCION B: 2 inches to the right.
OPCION C: 2.5 inches to the left.

6779 Fig. 33 A
How should the 200-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 2.5 inches to the left.
OPCION B: 2 inches to the right.
OPCION C: 2 inches to the left.

6780 Fig. 34 A
How should the 500-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 1 inch to the left.
OPCION B: 1 inch to the right.
OPCION C: 4.5 inches to the right.

6781 Fig. 34 C
How should the 250-pound weight be shifted to balance the plank on the fulcrum?
OPCION A: 8.4 inches to the right.
OPCION B: 2 inches to the right.
OPCION C: 2 inches to the left.

6782 Fig. 35 C
If 50 pounds of weight is located at point X and 100 pounds at point Z, how much weight must be located at point Y to balance the plank?
OPCION A: 30 pounds.
OPCION B: 50 pounds.
OPCION C: 300 pounds.

6783 Fig. 35 C
If 50 pounds of weight is located at point X and 100 pounds at point Y, how much weight must be located at point Z to balance the plank?
OPCION A: 150 pounds.
OPCION B: 100 pounds.
OPCION C: 50 pounds.

6784 Fig. 35 A
If 50-pound weights are located at points X, Y, and Z, how would point Z have to be shifted to balance the plank?
OPCION A: 25 inches to the left.
OPCION B: 2.5 inches to the left.
OPCION C: 2.5 inches to the right.

6785 Based on this information, the CG would be located how far aft of datum? A

Weight A ..... 120 lb at 15" aft of datum
Weight B ..... 200 lb at 117" aft of datum
Weight C ..... 75 lb at 195" aft of datum

OPCION A: 100.8 inches.
OPCION B: 109.0 inches.
OPCION C: 121.7 inches.

6786 Based on this information, the CG would be located how far aft of datum? B

Weight D ..... 160 lb at 45" aft of datum
Weight E ..... 170 lb at 145" aft of datum
Weight C ..... 105 lb at 185" aft of datum

OPCION A: 86.0 inches.
OPCION B: 117.8 inches.
OPCION C: 125.0 inches.

6787 Based on this information, the CG would be located how far aft of datum? B

Weight X ..... 130 lb at 17" aft of datum
Weight Y ..... 110 lb at 110" aft of datum
Weight Z ..... 75 lb at 210" aft of datum

OPCION A: 89.1 inches.
OPCION B: 95.4 inches.
OPCION C: 106.9 inches.

6788 What is the maximum weight that could be added at Station 130.0 without exceeding the aft CG limit? C

Total weight ..... 2,900 lb
CG location ..... Station 115.0
Aft CG limit ..... Station 116.0

OPCION A: 14 pounds.
OPCION B: 140 pounds.
OPCION C: 207 pounds.

6789 What would be the new CG location if 135 pounds of weight were added at Station 109.0? A

Total weight ..... 2,340 lb
CG location ..... Station 103.0

OPCION A: Station 103.3.
OPCION B: Station 104.2.
OPCION C: Station 109.3.

6790 How much weight could be added at Station 160 without exceeding the aft CG limit? A

Aircraft weight ..... 8,300 lb
CG location ..... Station 90.0
Aft CG limit ..... Station 90.5

OPCION A: 59.7 pounds.
OPCION B: 16.5 pounds.
OPCION C: 13.9 pounds.

6791 How much weight could be added at Station 120 without exceeding the aft CG limit? C

Aircraft weight ..... 9,500 lb
CG location ..... Station 90.0
Aft CG limit ..... Station 90.5

OPCION A: 61.0 pounds.
OPCION B: 110.5 pounds.
OPCION C: 161.0 pounds.

6792 What is the maximum weight that could be added at Station 150.0 without exceeding the aft CG limit? C

Total weight ..... 5,000 lb
CG location ..... Station 80.0
Aft CG limit ..... Station 80.5

OPCION A: 70.0 pounds.
OPCION B: 69.5 pounds.
OPCION C: 35.9 pounds.

6793 What is the location of the CG if 90 pounds are removed from Station 140? B

Aircraft weight ..... 6,230 lb
CG location ..... Station 79

OPCION A: 79.9.
OPCION B: 78.1.
OPCION C: 77.9.

6794 What is the location of the CG if 146 pounds are removed from Station 150? C

Aircraft weight ..... 7,152 lb
CG location ..... Station 82

OPCION A: 83.4.
OPCION B: 81.3.
OPCION C: 80.6.

6795 What is the location of the CG if 160 pounds are removed from Station 70? A

Aircraft weight ..... 8,420 lb
CG location ..... Station 85

OPCION A: 85.1.
OPCION B: 84.9.
OPCION C: 84.1.

6796 How much weight must be shifted from Station 150.0 to Station 30.0 to move the CG to exactly the aft CG limit? C

Total weight ..... 7,500 lb
CG location ..... Station 80.5
Aft CG limit ..... Station 79.5

OPCION A: 68.9 pounds.
OPCION B: 65.8 pounds.
OPCION C: 62.5 pounds.

6797 Could 100 pounds of weight be shifted from Station 130.0 to Station 30.0 without exceeding the forward CG limit? B

Total weight ..... 2,800 lb
CG location ..... Station 120.0
Forward CG limit ..... Station 117.0

OPCION A: No; the new CG would be located at Station 116.89.
OPCION B: No; the new CG would be located at Station 116.42.
OPCION C: Yes; the new CG would be located at Station 117.89.

6798 Could 100 pounds of weight be shifted from Station 30.0 to Station 120.0 without exceeding the aft CG limit? C

Total weight ..... 4,750 lb
CG location ..... Station 115.8
Aft CG limit ..... Station 118.0

OPCION A: Yes; the CG would remain at Station 115.8.
OPCION B: No; the new CG would be located at Station 118.15.
OPCION C: Yes; the new CG would be located at Station 117.69.

6799 Fig. 36 A
Determine the condition of the airplane:

Pilot and copilot ..... 375 lb
Passengers - aft position ..... 245 lb
Baggage ..... 65 lb
Fuel ..... 70 gal

OPCION A: 185 pounds under allowable gross weight; CG is located within limits.
OPCION B: 162 pounds under allowable gross weight; CG is located within limits.
OPCION C: 162 pounds under allowable gross weight; CG is located aft of the aft limit.

6800 Fig. 36 B
Determine the condition of the airplane:

Pilot and copilot ..... 400 lb
Passengers - aft position ..... 240 lb
Baggage ..... 20 lb
Fuel ..... 75 gal

OPCION A: 157 pounds under allowable gross weight; CG is located within limits.
OPCION B: 180 pounds under allowable gross weight; CG is located within limits.
OPCION C: 180 pounds under allowable gross weight, but CG is located aft of the aft limit.

6801 Fig. 36 B
Determine the condition of the airplane:

Pilot and copilot ..... 316 lb
Passengers (rear)
Fwd ..... 130 lb
Aft ..... 147 lb
Baggage ..... 50 lb
Fuel ..... 75 gal

OPCION A: 163 pounds under allowable gross weight; CG 82 inches aft of datum.
OPCION B: 197 pounds under allowable gross weight; CG 84.5 inches aft of datum.
OPCION C: 197 pounds under allowable gross weight; CG 84.6 inches aft of datum.

6802 If the nosewheel of an airplane moves aft during gear retraction, how would this aft movement affect the CG location of that airplane? It would A

OPCION A: cause the CG location to move aft.
OPCION B: have no effect on the CG location.
OPCION C: cause the CG location to move forward.

6803 If the landing gear on an airplane moves forward during retraction, the total moment will B

OPCION A: increase.
OPCION B: decrease.
OPCION C: remain the same.

6804 The center of gravity of an aircraft is computed along the C

OPCION A: lateral axis.
OPCION B: vertical axis.
OPCION C: longitudinal axis.

6805 The center of gravity of an aircraft can be determined by — B
OPCION A: dividing total arms by total moments.
OPCION B: dividing total moments by total weight.
OPCION C: multiplying total arms by total weight.

6807 In a twin-engine airplane, the single-engine service ceiling is the maximum density altitude at which Vyse will produce — A
OPCION A: 50 feet per minute rate of climb.
OPCION B: 100 feet per minute rate of climb.
OPCION C: 500 feet per minute rate of climb.

6808 When one engine fails on a twin-engine airplane, the resulting performance loss — A
OPCION A: may reduce the rate of climb by 80 percent or more.
OPCION B: reduces cruise indicated airspeed by 50 percent or more.
OPCION C: is approximately 50 percent since 50 percent of the normally available thrust is lost.

6809 What is the significance of the blue radial line on the airspeed indicator of a light multiengine airplane and when is it to be used? It indicates the — B
OPCION A: minimum speed at which the airplane is controllable when the critical engine is suddenly made inoperative and should be used at all altitudes when an engine is inoperative.
OPCION B: speed which will provide the maximum altitude gain in a given time when one engine is inoperative and should be used for climb and final approach during engine-out operations.
OPCION C: speed which will provide the greatest height for a given distance of forward travel when one engine is inoperative and should be used for all climbs during engine-out operations.

6810 When operating a light multiengine airplane at Vmc, the pilot should expect performance to be sufficient to maintain — A
OPCION A: heading.
OPCION B: heading and altitude.
OPCION C: heading, altitude, and be able to climb at 50 feet per minute.

6811 For an airplane with reciprocating, non-turbocharged engines, Vmc — A
OPCION A: decreases with altitude.
OPCION B: increases with altitude.
OPCION C: is not affected by altitude.

6812 Which is true regarding the operation of a multiengine airplane with one engine inoperative? — B
OPCION A: Banking toward the operating engine increases Vmc.
OPCION B: Banking toward the inoperative engine increases Vmc.
OPCION C: Vmc is a designed performance factor which must be proven during type certification and will not change as long as the ball is centered with appropriate rudder pressure.

6813 Which condition causes Vmc to be the highest? — B
OPCION A: CG is at the most forward allowable position.
OPCION B: CG is at the most rearward allowable position.
OPCION C: Gross weight is at the maximum allowable value.

6815 How does increased weight affect the takeoff distance of an airplane? — B
OPCION A: The airplane will accelerate more slowly with the same power output, but the same airspeed is required to generate necessary lift for takeoff.
OPCION B: The airplane will accelerate more slowly with the same power output, and a higher airspeed is required to generate necessary lift for takeoff.
OPCION C: Every airplane has the same acceleration factor with the same power output, but a higher airspeed is needed to overcome the increased ground effect.

6816 An aircraft is loaded with the CG aft of the aft limit. What effect will this have on controllability? — A
OPCION A: Stall and spin recovery may be difficult or impossible.
OPCION B: A stall will occur at a lower airspeed, but recovery will be easier because of reduced wing loading.
OPCION C: A stall will occur at a higher indicated airspeed due to the greater downloading on the elevator.

6817 The stalling speed of an aircraft will be highest when the aircraft is loaded with a — C
OPCION A: high gross weight and aft CG.
OPCION B: low gross weight and forward CG.
OPCION C: high gross weight and forward CG.

6818 An aircraft is loaded with the CG at the aft limit. What are the performance characteristics compared with the CG at the forward limit? — B
OPCION A: The aft CG provides the highest stall speed and cruising speed.
OPCION B: The aft CG provides the lowest stalling speed, the highest cruising speed, and least stability.
OPCION C: Cruising speed is lower because of more induced drag created by the elevator or stabilizer being required to provide more lift with an aft CG.

6819 If the CG of an aircraft is moved from the aft limit to beyond the forward limit, how will it affect the cruising and stalling speed? — C
OPCION A: Increase both the cruising speed and stalling speed.
OPCION B: Decrease both the cruising speed and stalling speed.
OPCION C: Decrease the cruising speed and increase the stalling speed.

6820 When an aircraft's forward CG limit is exceeded, it will affect the flight characteristics of the aircraft by producing — B
OPCION A: improved performance since it reduces the induced drag.
OPCION B: higher stalling speeds and more longitudinal stability.
OPCION C: very light elevator control forces which make it easy to inadvertently overstress the aircraft.

6821 As the CG moves aft, an aircraft becomes — A
OPCION A: less stable and less controllable.
OPCION B: less stable, yet easier to control.
OPCION C: more stable and controllable as long as the aft CG is not exceeded.

6822 What is characteristic of the indicated airspeed if the CG is at the most forward allowable position and constant power and altitude are maintained? — B
OPCION A: There is no relationship between CG location and indicated airspeed.
OPCION B: Indicated airspeed will be less than it would be with the CG in the most rearward allowable position.
OPCION C: Indicated airspeed will be greater than it would be with the CG in the most rearward allowable position.

6823 To maintain level flight in an airplane which is loaded with the CG at the forward limit, an additional download must be imposed on the horizontal stabilizer. This in turn produces — A
OPCION A: an additional load which the wing must support.
OPCION B: a lesser load that must be supported by the wing.
OPCION C: a decrease in drag and results in a faster airspeed.

6824 Under which condition is a forward CG most critical? — B
OPCION A: On takeoff.
OPCION B: On landing.
OPCION C: When in an unusual attitude.

6825 As the CG location is changed, recovery from a stall becomes progressively — B
OPCION A: less difficult as the CG moves rearward.
OPCION B: more difficult as the CG moves rearward.
OPCION C: more difficult as the CG moves either forward or rearward.

6826 What is the effect of center of gravity on the spin characteristics of an aircraft? — A
OPCION A: A flat spin may develop if the CG is too far aft.
OPCION B: If the CG is too far forward, spin entry will be difficult.
OPCION C: If the CG is too far aft, spins can become high-speed spirals.

7141 What can a pilot expect when landing at an airport located in the mountains? — A
OPCION A: Higher true airspeed and longer landing distance.
OPCION B: Higher indicated airspeed and shorter landing distance.
OPCION C: Faster groundspeed and increased aircraft performance.