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**TEMA:** 0114 ATP - (CHAP. 03) AERODYNAMICS

**COD\_PREG: PREGUNTA:**

**RPTA:**

8324 When are inboard ailerons normally used?

C

**OPCION A:** Low-speed flight only.

**OPCION B:** High-speed flight only.

**OPCION C:** Low-speed and high-speed flight.

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8325 When are outboard ailerons normally used?

A

**OPCION A:** Low-speed flight only.

**OPCION B:** High-speed flight only.

**OPCION C:** Low-speed and high-speed flight.

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8326 Which of the following is considered a primary flight control?

B

**OPCION A:** Slats.

**OPCION B:** Elevator.

**OPCION C:** Dorsal fin.

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8327 Which of the following is considered an auxiliary flight control?

C

**OPCION A:** Ruddervator.

**OPCION B:** Upper rudder.

**OPCION C:** Leading-edge flaps.

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8328 What is the purpose of a control tab?

A

**OPCION A:** Move the flight controls in the event of manual reversion.

**OPCION B:** Reduce control forces by deflecting in the proper direction to move a primary flight control.

**OPCION C:** Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.

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8329 What is the purpose of an anti-servo tab?

C

**OPCION A:** Move the flight controls in the event of manual reversion.

**OPCION B:** Reduce control forces by deflecting in the proper direction to move a primary flight control.

**OPCION C:** Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.

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8330 What is the purpose of a servo tab?

B

**OPCION A:** Move the flight controls in the event of manual reversion.

**OPCION B:** Reduce control forces by deflecting in the proper direction to move a primary flight control.

**OPCION C:** Prevent a control surface from moving to a full-deflection position due to aerodynamic forces.

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8331 Which is a purpose of leading-edge flaps?

A

**OPCION A:** Increase the camber of the wing.

**OPCION B:** Reduce lift without increasing airspeed.

**OPCION C:** Direct airflow over the top of the wing at high angles of attack.

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8332 What is a purpose of flight spoilers?

B

**OPCION A:** Increase the camber of the wing.

**OPCION B:** Reduce lift without increasing airspeed.

**OPCION C:** Direct airflow over the top of the wing at high angles of attack.

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8333 For which purpose may flight spoilers be used?

A

**OPCION A:** Reduce the wings' lift upon landing.

**OPCION B:** Increase the rate of descent without increasing aerodynamic drag.

**OPCION C:** Aid longitudinal balance when rolling an airplane into a turn.

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8334 Which is a purpose of leading-edge slats on high-performance wings?

C

**OPCION A:** Increase lift at relative slow speeds.

**OPCION B:** Improve aileron control during low angles of attack.

**OPCION C:** Direct air from the low pressure area under the leading edge along the top of the wing.

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8335	Which is a purpose of leading-edge slats on high-performance wings?	C
<b>OPCION A:</b>	Decrease lift at relative slow speeds.	
<b>OPCION B:</b>	Improve aileron control during low angles of attack.	
<b>OPCION C:</b>	Direct air from the high pressure area under the leading edge along the top of the wing.	

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8336	Which is a purpose of ground spoilers?	A
<b>OPCION A:</b>	Reduce the wings' lift upon landing.	
<b>OPCION B:</b>	Aid in rolling an airplane into a turn.	
<b>OPCION C:</b>	Increase the rate of descent without gaining airspeed.	

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8337	Which direction from the primary control surface does an anti-servo tab move?	A
<b>OPCION A:</b>	Same direction.	
<b>OPCION B:</b>	Opposite direction.	
<b>OPCION C:</b>	Remains fixed for all positions.	

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8338	Which direction from the primary control surface does a servo tab move?	B
<b>OPCION A:</b>	Same direction.	
<b>OPCION B:</b>	Opposite direction.	
<b>OPCION C:</b>	Remains fixed for all positions.	

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8339	Which direction from the primary control surface does an elevator adjustable trim tab move when the control surface is moved?	C
<b>OPCION A:</b>	Same direction.	
<b>OPCION B:</b>	Opposite direction.	
<b>OPCION C:</b>	Remains fixed for all positions.	

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8340	What is the purpose of an elevator trim tab?	C
<b>OPCION A:</b>	Provide horizontal balance as airspeed is increased to allow hands-off flight.	
<b>OPCION B:</b>	Adjust the speed tail load for different airspeeds in flight allowing neutral control forces.	
<b>OPCION C:</b>	Modify the downward tail load for various airspeeds in flight eliminating flight-control pressures.	

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8341	Which is a purpose of wing-mounted vortex generators?	A
<b>OPCION A:</b>	Reduce the drag caused by supersonic flow over portions of the wing.	
<b>OPCION B:</b>	Increase the onset of drag divergence and aid in aileron effectiveness at high speed.	
<b>OPCION C:</b>	Break the airflow over the wing so the stall will progress from the root out to the tip of the wing.	

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8342	Why do some airplanes equipped with inboard/outboard ailerons use the outboards for slow flight only?	B
<b>OPCION A:</b>	Increased surface area provides greater controllability with flap extension.	
<b>OPCION B:</b>	Aerodynamic loads on the outboard ailerons tend to twist the wingtips at high speeds.	
<b>OPCION C:</b>	Locking out the outboard ailerons in high-speed flight provides variable flight control feel.	

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8343	Which of the following are considered primary flight controls?	C
<b>OPCION A:</b>	Tabs.	
<b>OPCION B:</b>	Flaps.	
<b>OPCION C:</b>	Outboard ailerons.	

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8345	What effect does an increase in airspeed have on a coordinated turn while maintaining a constant angle of bank and altitude?	C
<b>OPCION A:</b>	The rate of turn will decrease resulting in a decreased load factor.	
<b>OPCION B:</b>	The rate of turn will increase resulting in an increased load factor.	
<b>OPCION C:</b>	The rate of turn will decrease resulting in no changes in load factor.	

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8346	What is the effect on total drag of an aircraft if the airspeed decreases in level flight below that speed for maximum L/D?	A
<b>OPCION A:</b>	Drag increases because of increased induced drag.	
<b>OPCION B:</b>	Drag increases because of increased parasite drag.	
<b>OPCION C:</b>	Drag decreases because of lower induced drag.	

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8347	What is load factor?	C
<b>OPCION A:</b>	Lift multiplied by the total weight.	
<b>OPCION B:</b>	Lift subtracted from the total weight.	
<b>OPCION C:</b>	Lift divided by the total weight.	

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8348	What affects indicated stall speed?	A
<b>OPCION A:</b>	Weight, load factor, and power.	
<b>OPCION B:</b>	Load factor, angle of attack, and power.	
<b>OPCION C:</b>	Angle of attack, weight, and air density.	

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8349	If no corrective action is taken by the pilot as angle of bank is increased, how is the vertical component of lift and sink rate affected?	C
<b>OPCION A:</b>	Lift increases and the sink rate increases.	
<b>OPCION B:</b>	Lift decreases and the sink rate decreases.	
<b>OPCION C:</b>	Lift decreases and the sink rate increases.	

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8350	Why must the angle of attack be increased during a turn to maintain altitude?	A
<b>OPCION A:</b>	Compensate for loss of vertical component of lift.	
<b>OPCION B:</b>	Increase the horizontal component of lift equal to the vertical component.	
<b>OPCION C:</b>	Compensate for increase in drag.	

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8351	How can the pilot increase the rate of turn and decrease the radius at the same time?	B
<b>OPCION A:</b>	Steeepen the bank and increase airspeed.	
<b>OPCION B:</b>	Steeepen the bank and decrease airspeed.	
<b>OPCION C:</b>	Shallow the bank and increase airspeed.	

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8352	What is the relationship of the rate of turn with the radius of turn with a constant angle of bank but increasing airspeed?	A
<b>OPCION A:</b>	Rate will decrease and radius will increase.	
<b>OPCION B:</b>	Rate will increase and radius will decrease.	
<b>OPCION C:</b>	Rate and radius will increase.	

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8353	Upon which factor does wing loading during a level coordinated turn in smooth air depend?	B
<b>OPCION A:</b>	Rate of turn.	
<b>OPCION B:</b>	Angle of bank.	
<b>OPCION C:</b>	True airspeed.	

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8354	If an aircraft with a gross weight of 2,000 pounds were subjected to a total of 6,000 pounds in flight, the load factor would be	B
<b>OPCION A:</b>	2 Gs.	
<b>OPCION B:</b>	3 Gs.	
<b>OPCION C:</b>	9 Gs.	

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8356	Airflow separation over the wing can be delayed by using vortex generators	C
<b>OPCION A:</b>	directing high pressure air over the top of the wing or flap through slots and making the wing surface smooth.	
<b>OPCION B:</b>	directing a suction over the top of the wing or flap through slots and making the wing surface smooth.	
<b>OPCION C:</b>	making the wing surface rough and/or directing high pressure air over the top of the wing or flap through slots.	

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8357	In a light, twin-engine airplane with one engine inoperative, when is it acceptable to allow the ball of a slip-skid indicator to be deflected outside the reference lines?	B
<b>OPCION A:</b>	While maneuvering at minimum controllable airspeed to avoid overbanking.	
<b>OPCION B:</b>	When operating at any airspeed greater than Vmc.	
<b>OPCION C:</b>	When practicing imminent stalls in a banked attitude.	

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8358	What is the safest and most efficient takeoff and initial climb procedure in a light, twin-engine airplane?	C
	Accelerate to	
<b>OPCION A:</b>	best engine-out, rate-of-climb airspeed while on the ground, then lift off and climb at that speed.	
<b>OPCION B:</b>	Vmc, then lift off at that speed and climb at maximum angle-of-climb airspeed.	
<b>OPCION C:</b>	an airspeed slightly above Vmc, then lift off and climb at the best rate-of-climb airspeed.	

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8359	What procedure is recommended for an engine-out approach and landing?	A
<b>OPCION A:</b>	The flightpath and procedures should be almost identical to a normal approach and landing.	
<b>OPCION B:</b>	The altitude and airspeed should be considerably higher than normal throughout the approach.	
<b>OPCION C:</b>	A normal approach, except do not extend the landing gear or flaps until over the runway threshold.	

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8360	What performance should a pilot of a light, twin-engine airplane be able to maintain Vmc?	A
<b>OPCION A:</b>	Heading.	
<b>OPCION B:</b>	Heading and altitude.	
<b>OPCION C:</b>	Heading, altitude, and ability to climb 50 ft/min.	

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8361	What criteria determines which engine is the "critical" engine of a twin-engine airplane?	A
<b>OPCION A:</b>	The one with the center of thrust closest to the centerline of the fuselage.	
<b>OPCION B:</b>	The one designated by the manufacturer which develops most usable thrust.	
<b>OPCION C:</b>	The one with the center of thrust farthest from the centerline of the fuselage.	

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8362	What effect, if any, does altitude have on Vmc for an airplane with unsupercharged engines?	C
<b>OPCION A:</b>	None.	
<b>OPCION B:</b>	Increases with altitude.	
<b>OPCION C:</b>	Decreases with altitude.	

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8363	Under what condition should stalls never be practiced in a twin-engine airplane?	A
<b>OPCION A:</b>	With one engine inoperative.	
<b>OPCION B:</b>	With climb power on.	
<b>OPCION C:</b>	With full flaps and gear extended.	

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8364	What does the blue radial line on the airspeed indicator of a light, twin-engine airplane represent?	A
<b>OPCION A:</b>	Maximum single-engine rate of climb.	
<b>OPCION B:</b>	Maximum single-engine angle of climb.	
<b>OPCION C:</b>	Minimum controllable airspeed for single-engine operation.	

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8365	Identify the type stability if the aircraft attitude remains in the new position after the controls have been neutralized.	C
<b>OPCION A:</b>	Negative longitudinal static stability.	
<b>OPCION B:</b>	Neutral longitudinal dynamic stability.	
<b>OPCION C:</b>	Neutral longitudinal static stability.	

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8366	What is a characteristic of longitudinal instability?	A
<b>OPCION A:</b>	Pitch oscillations becoming progressively greater.	
<b>OPCION B:</b>	Bank oscillations becoming progressively greater.	
<b>OPCION C:</b>	Aircraft constantly tries to pitch down.	

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8367	Describe dynamic longitudinal stability.	B
<b>OPCION A:</b>	Motion about the longitudinal axis.	
<b>OPCION B:</b>	Motion about the lateral axis.	
<b>OPCION C:</b>	Motion about the vertical axis.	

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8368	What is the reason for variations in geometric pitch along a propeller or rotor blade?	A
<b>OPCION A:</b>	It permits a relatively constant angle of attack along its length when in cruising flight.	
<b>OPCION B:</b>	It prevents the portion of the blade near the hub or root from stalling during cruising flight.	
<b>OPCION C:</b>	It permits a relatively constant angle of incidence along its length when in cruising flight.	

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8372	Identify the type stability if the aircraft attitude tends to move farther from its original position after the controls have been neutralized.	A
<b>OPCION A:</b>	Negative static stability.	
<b>OPCION B:</b>	Positive static stability.	
<b>OPCION C:</b>	Negative dynamic stability.	

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8373	Identify the type stability if the aircraft attitude tends to return to its original position after the controls have been neutralized.	B
<b>OPCION A:</b>	Positive dynamic stability.	
<b>OPCION B:</b>	Positive static stability.	
<b>OPCION C:</b>	Neutral dynamic stability.	

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8375	What flight condition should be expected when an aircraft leaves ground effect?	A
<b>OPCION A:</b>	An increase in induced drag requiring a higher angle of attack.	
<b>OPCION B:</b>	A decrease in parasite drag permitting a lower angle of attack.	
<b>OPCION C:</b>	An increase in dynamic stability.	

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8376	What characteristic should exist if an airplane is loaded to the rear of its CG range?	C
<b>OPCION A:</b>	Sluggish in aileron control.	
<b>OPCION B:</b>	Sluggish in rudder control.	
<b>OPCION C:</b>	Unstable about the lateral axis.	

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8377	What will be the ratio between airspeed and lift if the angle of attack and other factors remain constant and airspeed is doubled? Lift will be	C
<b>OPCION A:</b>	the same.	
<b>OPCION B:</b>	two times greater.	
<b>OPCION C:</b>	four times greater.	

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8378	What true airspeed and angle of attack should be used to generate the same amount of lift as altitude is increased?	B
<b>OPCION A:</b>	The same true airspeed and angle of attack.	
<b>OPCION B:</b>	A higher true airspeed for any given angle of attack.	
<b>OPCION C:</b>	A lower true airspeed and higher angle of attack.	

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8379	How can an airplane produce the same lift in ground effect as when out of ground effect?	B
<b>OPCION A:</b>	The same angle of attack.	
<b>OPCION B:</b>	A lower angle of attack.	
<b>OPCION C:</b>	A higher angle of attack.	

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8380	What are some characteristics of an airplane loaded with the CG at the limit?	A
<b>OPCION A:</b>	Lowest stall speed, highest cruise speed, and least stability.	
<b>OPCION B:</b>	Highest stall speed, highest cruise speed, and least stability.	
<b>OPCION C:</b>	Lowest stall speed, lowest cruise speed, and highest stability.	

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8382	By changing the angle of attack of a wing, the pilot can control the airplane's	B
<b>OPCION A:</b>	lift, gross weight, and drag.	
<b>OPCION B:</b>	lift, airspeed, and drag.	
<b>OPCION C:</b>	lift and airspeed, but not drag.	

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8384	The primary purpose of high-lift devices is to increase the	B
<b>OPCION A:</b>	L/Dmax.	
<b>OPCION B:</b>	lift at low speeds.	
<b>OPCION C:</b>	drag and reduce airspeed.	

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8385	What is the primary function of the leading edge flaps in landing configuration during the flare before touchdown?	A
<b>OPCION A:</b>	Prevent flow separation.	
<b>OPCION B:</b>	Decrease rate of sink.	
<b>OPCION C:</b>	Increase profile drag.	

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8386	What effect does the leading edge slot in the wing have on performance?	B
<b>OPCION A:</b>	Decreases profile drag.	
<b>OPCION B:</b>	Changes the stalling angle of attack to a higher angle.	
<b>OPCION C:</b>	Decelerates the upper surface boundary layer air.	

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8387	Within what Mach range does transonic flight regimes usually occur?	B
<b>OPCION A:</b>	.50 to .75 Mach.	
<b>OPCION B:</b>	.75 to 1.20 Mach.	
<b>OPCION C:</b>	1.20 to 2.50 Mach.	

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8388	What is the highest speed possible without supersonic flow over the wing?	B
<b>OPCION A:</b>	Initial buffet speed.	
<b>OPCION B:</b>	Critical Mach number.	
<b>OPCION C:</b>	Transonic index.	

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8389	What is the free stream Mach number which produces first evidence of local sonic flow?	C
<b>OPCION A:</b>	Supersonic Mach number.	
<b>OPCION B:</b>	Transonic Mach number.	
<b>OPCION C:</b>	Critical Mach number.	

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8390	At what Mach range does the subsonic flight range normally occur?	A
<b>OPCION A:</b>	Below .75 Mach.	
<b>OPCION B:</b>	From .75 to 1.20 Mach.	
<b>OPCION C:</b>	From 1.20 to 2.50 Mach.	

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8391	What is the principal advantage of a sweepback design wing over a straightwing design?	A
<b>OPCION A:</b>	The critical Mach number will increase significantly.	
<b>OPCION B:</b>	Sweepback will increase changes in the magnitude of force coefficients due to compressibility.	
<b>OPCION C:</b>	Sweepback will accelerate the onset of compressibility effect.	

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8392	What is the result of a shock-induced separation of airflow occurring symmetrically near the wing root of a sweptwing aircraft?	B
<b>OPCION A:</b>	A high-speed stall and sudden pitchup.	
<b>OPCION B:</b>	A severe moment or "tuck under".	
<b>OPCION C:</b>	Severe porpoising.	

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8393	What is one disadvantage of a sweptwing design?	B
<b>OPCION A:</b>	The wing root stalls prior to the wingtip section.	
<b>OPCION B:</b>	The wingtip section stalls prior to the wing root.	
<b>OPCION C:</b>	Severe pitchdown moment when the center of pressure shifts forward.	

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8394	What is the condition known as when gusts cause a sweptwing-type airplane to roll in one direction while yawing in the other?	C
<b>OPCION A:</b>	Porpoise.	
<b>OPCION B:</b>	Wingover.	
<b>OPCION C:</b>	Dutch roll.	

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8395	What is the movement of the center of pressure when the wingtips of a sweptwing airplane are shock-stalled first?	B
<b>OPCION A:</b>	Inward and aft.	
<b>OPCION B:</b>	Inward and forward.	
<b>OPCION C:</b>	Outward and forward.	

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8396	For a given angle of bank, the load factor imposed on both the aircraft and pilot in a coordinated constant-altitude turn	C
<b>OPCION A:</b>	is directly related to the airplane's gross weight.	
<b>OPCION B:</b>	varies with the rate of turn.	
<b>OPCION C:</b>	is constant.	

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8397	What is the relationship between induced and parasite drag when the gross weight is increased?	B
<b>OPCION A:</b>	Parasite drag increases more than induced drag.	
<b>OPCION B:</b>	Induced drag increases more than parasite drag.	
<b>OPCION C:</b>	Both parasite and induced drag are equally increased.	

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8399 At which speed will increasing the pitch attitude cause an airplane to climb?  
**OPCION A:** Low speed.  
**OPCION B:** High speed.  
**OPCION C:** Any speed.

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B

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