AIRCADEMY

Part-FCL Question Bank

PPL(A)

Acc. (EU) 1178/2011
and
AMC FCL.115, .120, 210, .215

(Excerpt)

51 – Principles of Flight (Aeroplane)

Publisher:
EDUCADEMY GmbH
info@aircademy.com

COPYRIGHT Remark:

Please note that this excerpt contains only 75% of the total question bank content. Examinations may also contain questions not covered by this issue.

Revision & Quality Assurance

Within the process of continuous revision and update of the international question bank for Private Pilots (ECQB-PPL), we always appreciate contribution of competent experts. If you are interested in co- operation, please contact us at experts@aircademy.com.

If you have comments or suggestions for this question bank, please contact us at info@aircademy.com.

1 Compared to trailing edge flaps, leading edge devices like Slots... (1,00 P.)

- ☐ reduce the critical angle of attack at a given speed.
- ☐ allow higher speeds at take-off and landing.
- ☑ produce less drag while allowing a higher angle of attack.
- ☐ increase the camber and allow a lower angle of attack.

2 Stabilization around the lateral axis during cruise is achieved by the... (1,00 P.)

- ☑ horizontal stabilizer.
- ☐ airlerons.
- ☐ wing flaps.
- ☐ vertical rudder.

3 Flying with speeds higher than the never-exceed-speed (vNE) may result in... (1,00 P.)

- ☐ too high total pressure resulting in an unusable airspeed indicator.
- ☑ flutter and mechanically damaging the wings.
- ☐ an increased lift-to-drag ratio and a better glide angle.
- ☐ reduced drag with increased control forces.

4 What effects typically result from propeller icing? (1,00 P.)

- ☑ Reduced power output, decreasing RPM.
- ☐ Increased power output, decreasing RPM.
- ☐ Increased power output, increasing RPM.
- ☐ Reduced power output, increasing RPM.

5 During a straight and steady climb, which force acts addionally, and in the same direction as the drag force, resulting in more power required for climb than for horizontal flight? (1,00 P.)

- ☑ A component of the weight force along the rearward flight path.
- ☐ The vertical component of the weight force.
- ☐ A component of the thrust along the rearward flightpath.
- ☐ A component of the lift force along the forward flightpath.

6 The static pressure of gases work... (1,00 P.)

- ☐ only vertical to the flow direction.
- ☐ only in the direction of the total pressure.
- ☑ in all directions.
- ☐ only in flow direction.

7 Bernoulli's equation for frictionless, incompressible gases states that... (1,00 P.)

- ☐ static pressure = total pressure + dynamic pressure.
- ☐ total pressure = dynamic pressure - static pressure.
- ☐ dynamic pressure = total pressure + static pressure.
- ☑ total pressure = dynamic pressure + static pressure.

8 If surrounded by airflow (v>0), any arbitrarily shaped body produces... (1,00 P.)

- ☐ lift without drag.
- ☐ drag and lift.
- ☐ constant drag at any speed.
- ☑ drag.

9 All aerodynamic forces can be considered to act on a single point.

This point is called... (1,00 P.)

- ☐ center of gravity.
- ☑ center of pressure.
- ☐ lift point.
- ☐ transition point.

10 The center of pressure is the theoretical point of origin of... (1,00 P.)

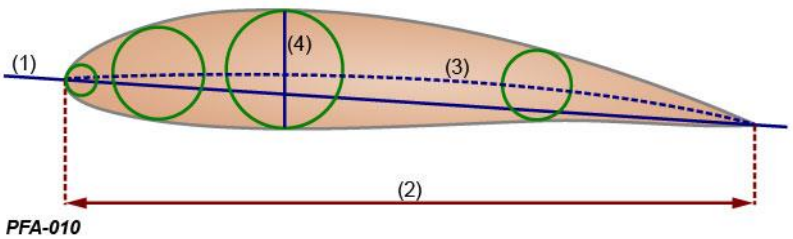
- ☐ only the resulting total drag.
- ☑ all aerodynamic forces of the profile.
- ☐ gravity forces of the profile.
- ☐ gravity and aerodynamic forces.

11 Number 2 in the drawing corresponds to the...

See figure (PFA-010) (1,00 P.)

Siehe Anlage 1

- ☐ chord line.
- ☑ chord.
- ☐ angle of attack.
- ☐ profile thickness.



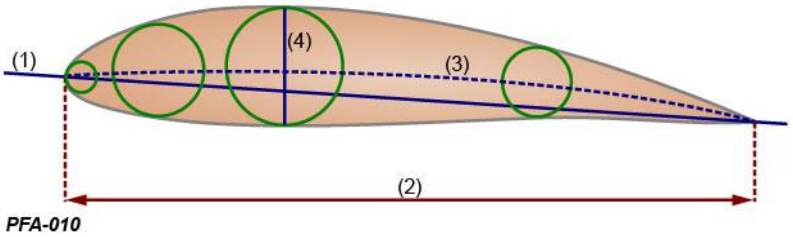
PFA-010

12 Number 3 in the drawing corresponds to the...

See figure (PFA-010) (1,00 P.)

Siehe Anlage 1

- ☐ chord.
- ☐ thickness.
- ☑ camber line.
- ☐ chord line.



PFA-010

13 The angle of attack is the angle between... (1,00 P.)

- ☐ the undisturbed airflow and the longitudinal axis of an aeroplane.
- ☐ the chord line and the longitudinal axis of an aeroplane.
- ☑ the chord line and the oncoming airflow.
- ☐ the wing and the fuselage of an aeroplane.

14 The ratio of span and mean chord length is referred to as... (1,00 P.)

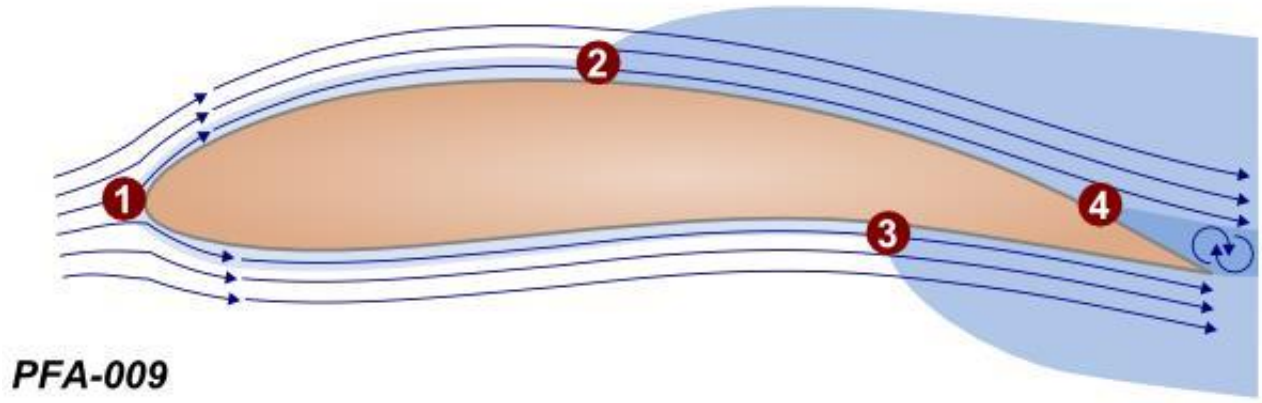
- ☐ trapezium shape.
- ☐ tapering.
- ☑ aspect ratio.
- ☐ wing sweep.

15 Which point on the aerofoil is represented by number 3?

See figure (PFA-009) (1,00 P.)

Siehe Anlage 2

- ☐ Separation point
- ☐ Center of pressure
- ☐ Stagnation point
- ☑ Transition point



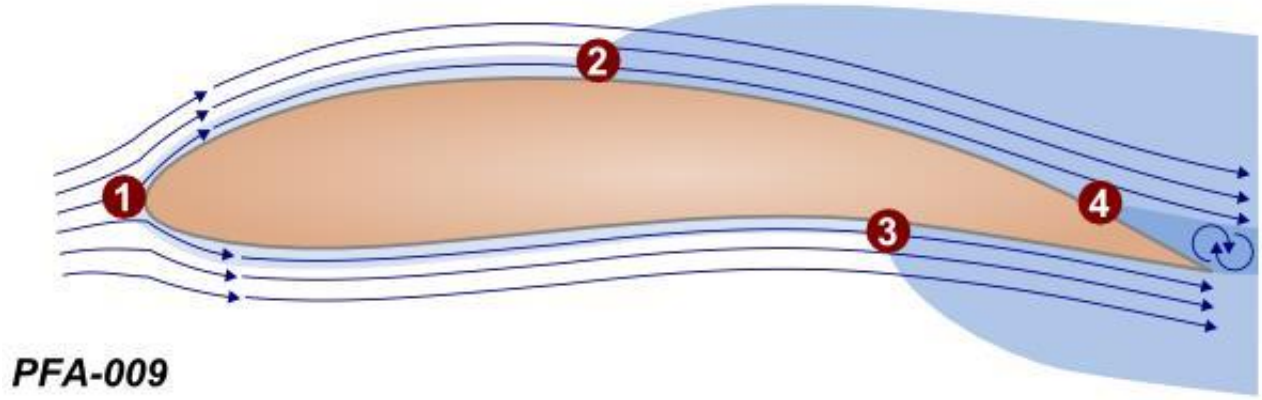
PFA-009

16 Which point on the aerofoil is represented by number 4?

See figure (PFA-009) (1,00 P.)

Siehe Anlage 2

- ☐ Center of pressure
- ☑ Separation point
- ☐ Transition point
- ☐ Stagnation point



PFA-009

17 Wing tip vortex development begins during which phase of flight? (1,00 P.)

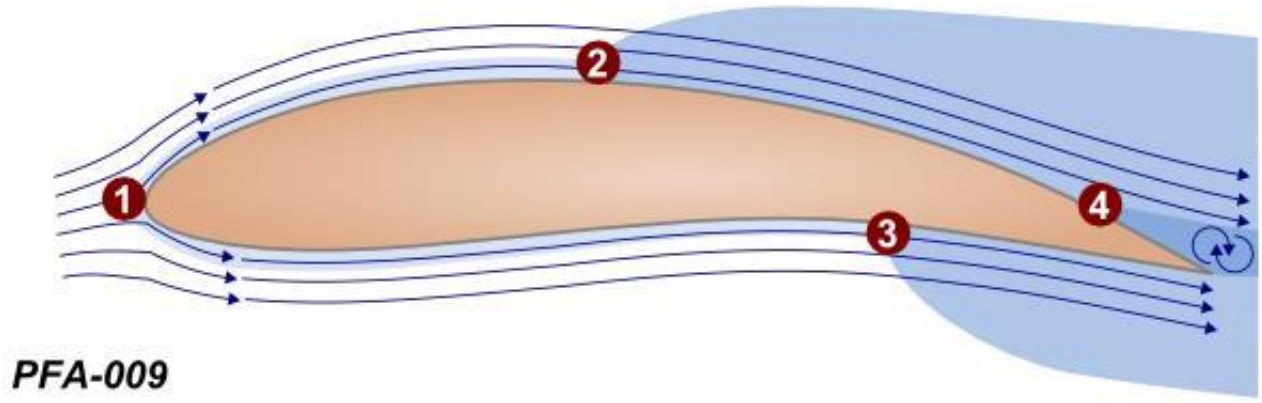
- ☐ As soon as the aircraft starts moving
- ☐ While setting take-off power during take-off run
- ☐ While setting flaps to lower position
- ☑ When lift is being generated during rotation

18 Which point on the aerofoil is represented by number 1?

See figure (PFA-009) (1,00 P.)

Siehe Anlage 2

- ☐ Transition point
- ☑ Stagnation point
- ☐ Center of pressure
- ☐ Separation point



PFA-009

19 What pattern can be found at the stagnation point? (1,00 P.)

- ☐ The boundary layer starts separating on the upper surface of the profile
- ☐ The laminar boundary layer changes into a turbulent boundary layer
- ☐ All aerodynamic forces can be considered as attacking at this single point
- ☑ Streamlines are divided into airflow above and below the profile

20 What pressure pattern can be observed at a lift-generating wing profile at positive angle of attack? (1,00 P.)

- ☑ Low pressure is created above, higher pressure below the profile
- ☐ High pressure is created above, lower pressure below the profile
- ☐ Pressure above remains unchanged, higher pressure is created below the profile
- ☐ Pressure below remains unchanged, lower pressure is created above the profile

21 The position of the the center of pressure at a positively shaped profile... (1,00 P.)

- ☐ moves to the leading edge while the angle of attack becomes smaller.
- ☐ is located at approximately 25% of the chord, measured from the leading edge.
- ☑ moves to the trailing edge while the angle of attack becomes smaller.
- ☐ does not move since it is independent of the angle of attack.

22 In which way does the position of the center of pressure move at a positively shaped profile with increasing angle of attack? (1,00 P.)

- ☐ It moves backward until reaching the critical angle of attack
- ☐ It moves forward first, then backward
- ☑ It moves forward until reaching the critical angle of attack
- ☐ It moves to the wing tips

23 Which statement about lift and angle of attack is correct? (1,00 P.)

- ☐ Too large angles of attack can lead to an exponential increase in lift
- ☐ Increasing the angle of attack results in less lift being generated by the aerofoil
- ☑ Increasing the angle of attack too far may result in a loss of lift and an airflow separation
- ☐ Decreasing the angle of attack results in more drag being generated by the aerofoil

24 Which statement about the airflow around an aerofoil is correct if the angle of attack increases? (1,00 P.)

- ☑ The stagnation point moves down
- ☐ The center of pressure moves down
- ☐ The center of pressure moves up
- ☐ The stagnation point moves up

25 Which statement about the airflow around an aerofoil is correct if the angle of attack decreases? (1,00 P.)

- ☑ The center of pressure moves aft
- ☐ The stagnation point remains constant
- ☐ The stagnation point moves down
- ☐ The center of pressure moves forward

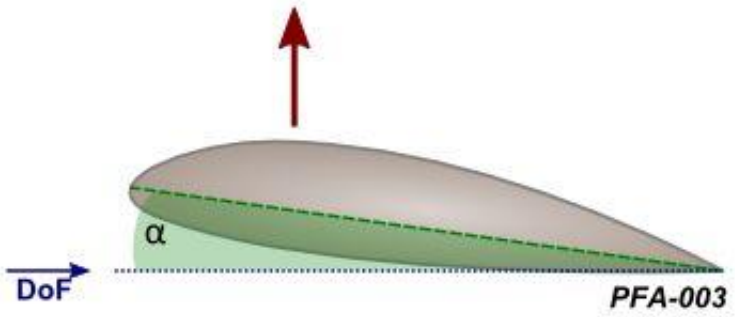
26 The angle (alpha) shown in the figure is referred to as...

See figure (PFA-003)

DoF: direction of airflow (1,00 P.)

Siehe Anlage 3

- ☐ lift angle.
- ☐ angle of incidence.
- ☐ angle of inclination.
- ☑ angle of attack.



27 In order to improve the stall characteristics of an aircraft, the wing is twisted outwards (the angle of incidence varies spanwise).

This is known as... (1,00 P.)

- ☐ aerodynamic washout.
- ☐ arrow shape.
- ☐ V-form.
- ☑ geometric washout.

28 Which option states a benefit of wing washout? (1,00 P.)

- ☐ Structurally the wing is made more rigid against rotation
- ☐ With the washout the form drag reduces at high speeds
- ☐ Greater hardness because the wing can withstand more torsion forces
- ☑ At high angles of attack the effectiveness of the aileron is retained as long as possible

29 Which statement concerning the angle of attack is correct? (1,00 P.)

- ☐ The angle of attack cannot be negative
- ☐ Increasing the angle of attack results in decreasing lift
- ☐ The angle of attack is constant throughout the flight
- ☑ A too large angle of attack may result in a loss of lift

30 When increasing the airflow speed by a factor of 2 while keeping all other parameters constant, how does the parasite drag change approximately? (1,00 P.)

- ☐ It decreases by a factor of 2
- ☐ It increases by a factor of 2
- ☐ It decreases by a factor of 4
- ☑ It increases by a factor of 4

31 The drag coefficient... (1,00 P.)

- ☐ increases with increasing airspeed.
- ☐ is proportional to the lift coefficient.
- ☑ cannot be lower than a non-negative, minimal value.
- ☐ may range from zero to an infinite positive value.

32 Pressure compensation on an wing occurs at the... (1,00 P.)

- ☐ wing roots.
- ☑ wing tips.
- ☐ trailing edge.
- ☐ leading edge.

33 Which of the following options is likely to produce large induced drag? (1,00 P.)

- ☐ Large aspect ratio
- ☐ Tapered wings
- ☑ Small aspect ratio
- ☐ Low lift coefficients

34 Which parts of an aircraft mainly affect the generation of induced drag? (1,00 P.)

- ☐ the front part of the fuselage.
- ☑ the wing tips.
- ☐ the lower part of the gear.
- ☐ the outer part of the ailerons.

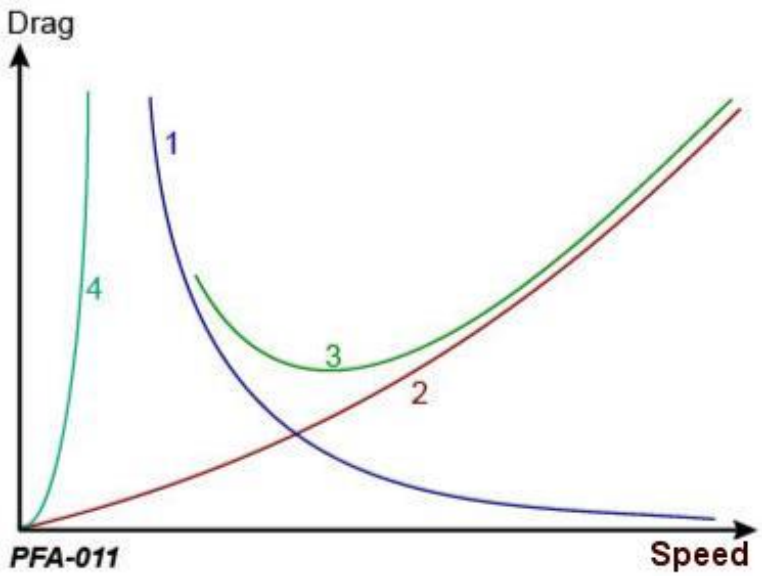
35 Where is interference drag generated? (1,00 P.)

- ☑ At the wing root
- ☐ At the ailerons
- ☐ At the the gear
- ☐ Near the wing tips

36 Which curve represents the induced drag?

See Appendix (PFA-011)
(1,00 P.)

- ☑ 1
- ☐ 4
- ☐ 2
- ☐ 3



37 Pressure drag, interference drag and friction drag belong to the group of the... (1,00 P.)

- ☐ induced drag.
- ☑ parasite drag.
- ☐ main resistance.
- ☐ total drag.

38 What kind of drag is NOT part of the parasite drag? (1,00 P.)

- ☐ Interference drag
- ☐ Skin-friction drag
- ☑ Induced drag
- ☐ Form drag

39 How do induced drag and parasite drag change with increasing airspeed during a horizontal and stable cruise flight? (1,00 P.)

- ☑ Induced drag decreases and parasite drag increases
- ☐ Parasite drag decreases and induced drag increases
- ☐ Parasite drag decreases and induced drag decreases
- ☐ Induced drag increases and parasite drag increases

40 Which of the listed wing shapes has the lowest induced drag? (1,00 P.)

- ☑ Elliptical shape
- ☐ Double trapezoidal shape
- ☐ Rectangular shape
- ☐ Trapezoidal shape

41 Which effect does a decreasing airspeed have on the induced drag during a horizontal and stable cruise flight? (1,00 P.)

- ☑ The induced drag will increase
- ☐ The induced drag will collapse
- ☐ The induced drag will remain constant
- ☐ The induced drag will slightly decrease

42 Which statement about induced drag during the horizontal cruise flight is correct? (1,00 P.)

- ☐ Induced drag has a minimum at a certain speed and increases at higher as well as lower speeds
- ☐ Induced drag has a maximum at a certain speed and decreases at higher as well as lower speeds
- ☐ Induced drag increases with increasing airspeed
- ☑ Induced drag decreases with increasing airspeed

43 In which mentioned situation is the total drag at its minimum? (1,00 P.)

- ☐ Induced drag is twice as much as parasite drag
- ☐ Parasite drag is twice as much as induced drag
- ☑ Parasite drag is equal to induced drag
- ☐ Induced drag is smaller than parasite drag

44 Which kinds of drag contribute to total drag? (1,00 P.)

- ☐ Form drag, skin-friction drag, interference drag
- ☐ Interference drag and parasite drag
- ☐ Induced drag, form drag, skin-friction drag
- ☑ Induced drag and parasite drag

45 How do lift and drag change when approaching a stall condition? (1,00 P.)

- ☐ Lift and drag decrease
- ☐ Lift and drag increase
- ☑ Lift decreases and drag increases
- ☐ Lift increases and drag decreases

46 In case of a stall it is important to... (1,00 P.)

- ☐ increase the bank angle and reduce the speed.
- ☐ increase the angle of attack and increase the speed.
- ☑ decrease the angle of attack and increase the speed.
- ☐ increase the angle of attack and reduce the speed.

47 During a stall, the lift... (1,00 P.)

- ☑ decreases and drag increases.
- ☐ increases and drag decreases.
- ☐ increases and drag increases.
- ☐ decreases and drag decreases.

48 The critical angle of attack... (1,00 P.)

- ☐ changes with increasing weight.
- ☐ decreases with forward center of gravity position.
- ☑ is independent of the weight.
- ☐ increases with backward center of gravity position.

49 What leads to a decreased stall speed Vs (IAS)? (1,00 P.)

- ☐ Lower altitude
- ☐ Lower density
- ☐ Higher load factor
- ☑ Decreasing weight

50 The stall warning will be activated just before reaching which speed? (1,00 P.)

- ☐ VNE
- ☑ VS
- ☐ VX
- ☐ VR

51 In motorplanes the stall warning is usually activated by a change of... (1,00 P.)

- ☐ the center of gravity.
- ☐ the transition point.
- ☐ the center of pressure.
- ☑ the stagnation point.

52 How should the pilot react to an engaged stall warning? (1,00 P.)

- ☐ Pull the elevator, increase power
- ☐ Pull the elevator, decrease power
- ☑ Push the elevator, increase power
- ☐ Raise the nose to decrease airspeed

53 Which statement regarding a spin is correct? (1,00 P.)

- ☑ During recovery the ailerons should be kept neutral
- ☐ Only very old aeroplanes have a risk of spinning
- ☐ During recovery the ailerons should be crossed
- ☐ During the spin the speed constantly increases

54 When extending the flaps for landing at constant angle of attack, in which way does the lift coefficient change far before reaching the maximum lift coefficient? (1,00 P.)

- ☐ It decreases
- ☐ It is not possible to define
- ☑ It increases
- ☐ It remains constant

55 With regard to flaps, which of the following options provides a lift-increasing effect? (1,00 P.)

- ☐ Decreasing the angle of attack
- ☑ Increasing the aerofoil camber
- ☐ Decreasing the form drag
- ☐ Lowering the induced drag

56 Which factor can be changed by deploying flaps for landing? (1,00 P.)

- ☐ The position of the center of gravity
- ☐ The effectiveness of the ailerons
- ☐ The twist effect of the engine
- ☑ The trim condition

57 What is the principle of a Fowler flap? (1,00 P.)

- ☑ A profile-like flap is extended from the trailing edge of the wing
- ☐ A flap from the rear bottom side of the wing is folded down
- ☐ At high angles of attack a part of the leading edge lifts
- ☐ The rear part of the wing is folded down

58 A take-off with flaps in take-off position causes... (1,00 P.)

- ☐ an increased rate of climb.
- ☐ an increased acceleration.
- ☑ a shortening of the take-off run.
- ☐ a decrease in drag.

59 Provided that no other procedure is described in the Aircraft Operating Handbook, after increasing the engine power in a go-around, the flaps may... (1,00 P.)

- ☐ not be operated up to the minimum safe altitude.
- ☑ be retracted to a middle position.
- ☐ be fully retracted without any delay.
- ☐ remain fully extended until reaching the traffic pattern.

60 How do lift and drag change when setting flaps to a lower position? (1,00 P.)

- ☐ Lift increases, drag decreases
- ☑ Lift increases, drag increases
- ☐ Lift decreases, drag decreases
- ☐ Lift decreases, drag increases

61 The laminar boundary layer on the aerofoil is located between... (1,00 P.)

- ☐ the transition point and the separation point.
- ☑ the stagnation point and the transition point.
- ☐ the transition point and the center of pressure.
- ☐ the stagnation point and the center of pressure.

62 What types of boundary layers can be found on an aerofoil? (1,00 P.)

- ☑ Laminar layer at the leading wing areas, turbulent boundary layer at the trailing areas
- ☐ Turbulent boundary layer along the complete upper surface with separated airflow
- ☐ Turbulent layer at the leading wing areas, laminar boundary layer at the trailing areas
- ☐ Laminar boundary layer along the complete upper surface with non-separated airflow

63 How does a laminar boundary layer differ from a turbulent boundary layer? (1,00 P.)

- ☐ The laminar boundary layer produces lift, the turbulent boundary layer produces drag
- ☐ The turbulent boundary layer is thicker and provides less skin-friction drag
- ☐ The laminar boundary layer is thinner and provides more skin-friction drag
- ☑ The turbulent boundary layer can follow the airfoil camber at higher angles of attack

64 What structural item provides lateral stability to an airplane? (1,00 P.)

- ☐ Differential aileron deflection
- ☑ Wing dihedral
- ☐ Vertical tail
- ☐ Elevator

65 Which statement describes a situation of static stability? (1,00 P.)

- ☐ An aircraft distorted by external impact will tend to an even more deflected position
- ☑ An aircraft distorted by external impact will return to the original position
- ☐ An aircraft distorted by external impact can return to its original position by rudder input
- ☐ An aircraft distorted by external impact will maintain the deflected position

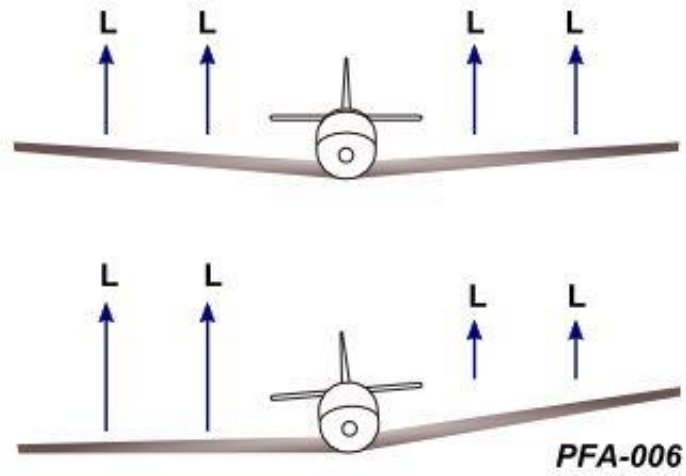
66 Which constructive feature is shown in the figure?

See figure (PFA-006)

L: Lift (1,00 P.)

Siehe Anlage 4

- ☐ Longitudinal stability by wing dihedral
- ☑ Lateral stability by wing dihedral
- ☐ Differential aileron deflection
- ☐ Directional stability by lift generation



67 "Longitudinal stability" is referred to as stability around which axis? (1,00 P.)

- ☐ Propeller axis
- ☐ Vertical axis
- ☐ Longitudinal axis
- ☑ Lateral axis

68 Stability around which axis is mainly influenced by the center of gravity's longitudinal position? (1,00 P.)

- ☐ Vertical axis
- ☐ Longitudinal axis
- ☐ Gravity axis
- ☑ Lateral axis

69 What structural item provides directional stability to an airplane? (1,00 P.)

- ☐ Differential aileron deflection
- ☑ Large vertical tail
- ☐ Wing dihedral
- ☐ Large elevator

70 Rotation around the vertical axis is called... (1,00 P.)

- ☐ rolling.
- ☐ pitching.
- ☑ yawing.
- ☐ slipping.

71 Rotation around the lateral axis is called... (1,00 P.)

- ☐ rolling.
- ☐ stalling.
- ☐ yawing.
- ☑ pitching.

72 The critical angle of attack... (1,00 P.)

- ☐ increases with a front centre of gravity.
- ☐ decreases with a rear centre of gravity.
- ☐ is changed by different aircraft weights.
- ☑ is not changed by different aircraft weights.

73 In straight and level flight with constant performance of the engine, the angle of attack at the wing is... (1,00 P.)

- ☐ greater than in a climb.
- ☐ greater than at take-off.

- ☐ smaller than in a descent.
- ☑ smaller than in a climb.

74 What is the function of the horizontal tail (among other things)? (1,00 P.)

- ☑ To stabilise the aeroplane around the lateral axis

- ☐ To initiate a curve around the vertical axis
- ☐ To stabilise the aeroplane around the longitudinal axis
- ☐ To stabilise the aeroplane around the vertical axis

75 The elevator deflection during take-off rotation... (1,00 P.)

- ☑ is increased for a front centre of gravity.
- ☐ is increased for a rear centre of gravity.

- ☐ is increased at high speeds.
- ☐ is independent of the speed.

76 The elevator moves an aeroplane around the... (1,00 P.)

- ☑ lateral axis.
- ☐ elevator axis.
- ☐ longitudinal axis.
- ☐ vertical axis.

77 What has to be considered with regard to the center of gravity position? (1,00 P.)

- ☐ The center of gravity's position can only be determined during flight.
- ☑ Only correct loading can assure a correct and safe center of gravity position.
- ☐ By moving the elevator trim tab, the center of gravity can be shifted into a correct position.
- ☐ By moving the aileron trim tab, the center of gravity can be shifted into a correct position.

78 Rudder deflections result in a turn of the aeroplane around the... (1,00 P.)

- ☐ rudder axis.
- ☐ lateral axis.
- ☑ vertical axis.
- ☐ longitudinal axis.

79 Deflecting the rudder to the left causes... (1,00 P.)

- ☐ pitching of the aircraft to the right.
- ☐ yawing of the aircraft to the right.
- ☑ yawing of the aircraft to the left.
- ☐ pitching of the aircraft to the left.

80 What is the advantage of differential aileron movement? (1,00 P.)

- ☐ The ratio of the drag coefficient to lift coefficient is increased
- ☐ The adverse yaw is higher
- ☑ The drag of the downwards deflected aileron is lowered and the adverse yaw is smaller
- ☐ The total lift remains constant during aileron deflection

81 Which design feature can compensate for adverse yaw? (1,00 P.)

- ☐ Wing dihedral
- ☐ Full deflection of the aileron
- ☐ Aileron trim
- ☑ Differential aileron defletion

82 Differential aileron deflection is used to... (1,00 P.)

- ☑ keep the adverse yaw low.
- ☐ avoid a stall at low angles of attack.
- ☐ increase the rate of descent.
- ☐ reduce wake turbulence.

83 The right aileron deflects upwards, the left downwards.

How does the aircraft react? (1,00 P.)

- ☐ Rolling to the left, no yawing
- ☐ Rolling to the right, yawing to the right
- ☑ Rolling to the right, yawing to the left
- ☐ Rolling to the left, yawing to the right

84 The aerodynamic rudder balance... (1,00 P.)

- ☐ improves the rudder effectiveness.
- ☐ reduces the control surfaces.
- ☑ reduces the control stick forces.
- ☐ delays the stall.

85 Which constructive feature has the purpose to reduce stearing forces? (1,00 P.)

- ☐ T-tail
- ☐ Vortex generators
- ☐ Differential aileron deflection
- ☑ Aerodynamic rudder balance

86 What is the function of the static rudder balance? (1,00 P.)

- ☐ To trim the controls almost without any force
- ☐ To increase the control stick forces
- ☐ To limit the control stick forces
- ☑ To prevent control surface flutter

87 During cruise flight with constant power setting, an aircraft shows a permanent tendency to raise the nose.

How can this tendency be eliminated? (1,00 P.)

- ☑ By deflecting the elevator trim tab upwards
- ☐ By shifting the center of gravity backwards
- ☐ By elevator deflection upwards
- ☐ By deflecting the elevator trim tab downwards

88 The trim tab at the elevator is defelected upwards.

In which position is the corresponding indicator? (1,00 P.)

- ☐ Neutral position
- ☐ Nose-up position
- ☑ Nose-down position
- ☐ Laterally trimmed

89 What describes "wing loading"? (1,00 P.)

- ☐ Drag per wing area
- ☐ Drag per weight
- ☐ Wing area per weight
- ☑ Weight per wing area

90 Through which factor listed below does the load factor increase during cruise flight? (1,00 P.)

- ☐ A forward centre of gravity
- ☐ Higher aeroplane weight
- ☑ An upward gust
- ☐ Lower air density

91 Which statement regarding the "constant-speed propeller" is correct? (1,00 P.)

- ☐ The propeller keeps the airspeed constant
- ☑ The pitch of the propeller rises with higher speeds
- ☐ The RPM decreases with lower speeds
- ☐ The set RPM is kept constant by the motor power (MAP)

92 The change in pitch at a propeller blade from the root to the tip ensures... (1,00 P.)

- ☐ that the most thrust is produced at the blade tip.
- ☐ that the most thrust is produced at the blade root.
- ☑ a nearly constant load by a constant effective angle of attack over the entire length of the blade.
- ☐ the largest possible angle of attack at the blade tip.

93 After an engine failure, the windmilling propeller... (1,00 P.)

- ☐ generates neither thrust nor drag.
- ☐ has a greater pitch in feathered position.
- ☑ generates drag rather than thrust.
- ☐ improves the properties of the glide.

94 During a descent at idle power with constant speed, the propeller lever is moved backwards.

How do the propeller pitch and sink rate change? (1,00 P.)

☐ Propeller pitch is increased, sink rate is increased
☑ Propeller pitch is increased, sink rate is decreased
☐ Propeller pitch is decreased, sink rate is increased

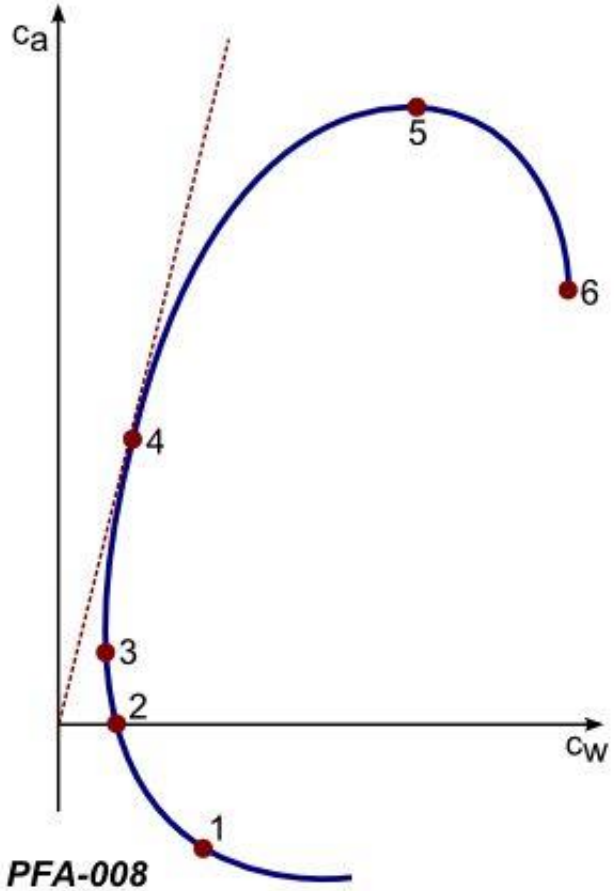
☐ Propeller pitch is decreased, sink rate is decreased

95 Point number 1 in the figure indicates which flight state?

See figure (PFA-008) (1,00 P.)

Siehe Anlage 5

☐ Stall
☑ Inverted flight
☐ Best gliding angle
☐ Slow flight



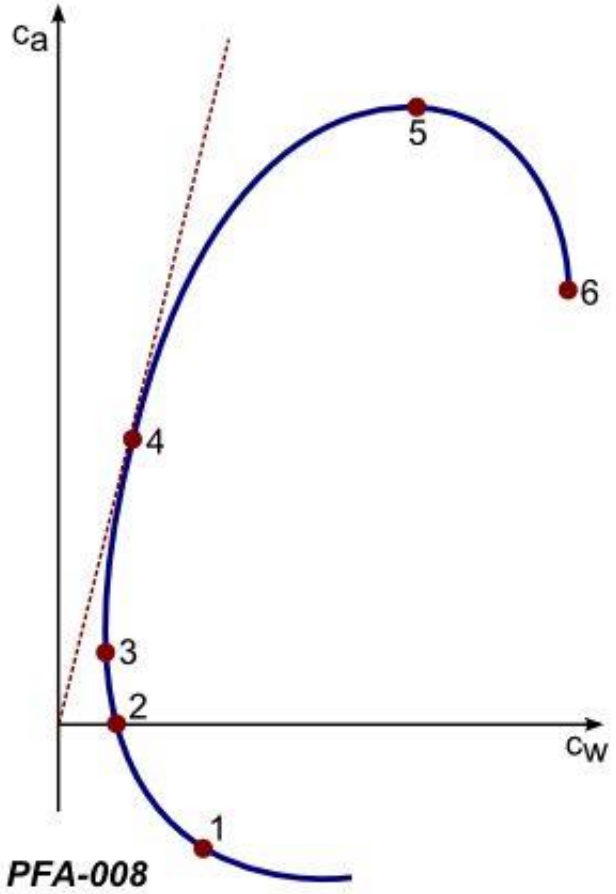
PFA-008

96 Point number 5 in the figure indicates which flight state?

See figure (PFA-008) (1,00 P.)

Siehe Anlage 5

- ☐ Best gliding angle
- ☑ Slow flight
- ☐ Stall
- ☐ Inverted flight



97 The bank in a two-minute turn (rate one turn) depends on the... (1,00 P.)

- ☐ weight.
- ☐ wind.
- ☐ load factor.
- ☑ TAS.

98 In a co-ordinated turn, how is the relation between the load factor (n) and the stall speed (Vs)? (1,00 P.)

- ☐ n is smaller than 1, Vs is greater than in straight and level flight.
- ☑ n is greater than 1, Vs is greater than in straight and level flight.
- ☐ n is smaller than 1, Vs is smaller than in straight and level flight.
- ☐ n is greater than 1, Vs is smaller than in straight and level flight.

99 How is the balance of forces affected during a turn? (1,00 P.)

- ☑ Lift force must be increased to compensate for the sum of centrifugal and gravitational force
- ☐ The net force results from superposition of gravity and centripetal forces
- ☐ The horizontal component of the lift force during a turn is the centrifugal force
- ☐ A lower lift force compensates for a lower net force as compared to level flight

100 The pressure compensation between wind upper and lower surface results in ... (1,00 P.)

- ☐ laminar airflow by wing tip vortices.
- ☐ profile drag by wing tip vortices.
- ☑ induced drag by wing tip vortices.
- ☐ lift by wing tip vortices.

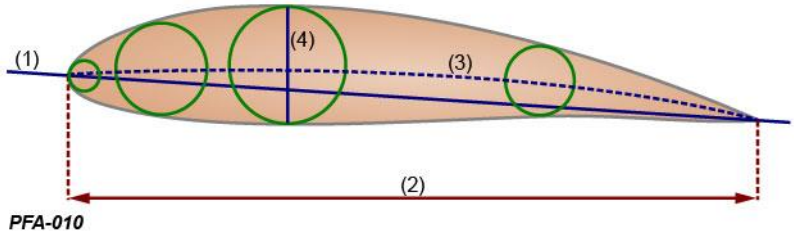
101 What is meant by "ground effect"? (1,00 P.)

- ☐ Increase of lift and increase of induced drag close to the ground
- ☐ Decrease of lift and increase of induced drag close to the ground
- ☐ Decrease of lift and decrease of induced drag close to the ground
- ☑ Increase of lift and decrease of induced drag close to the ground

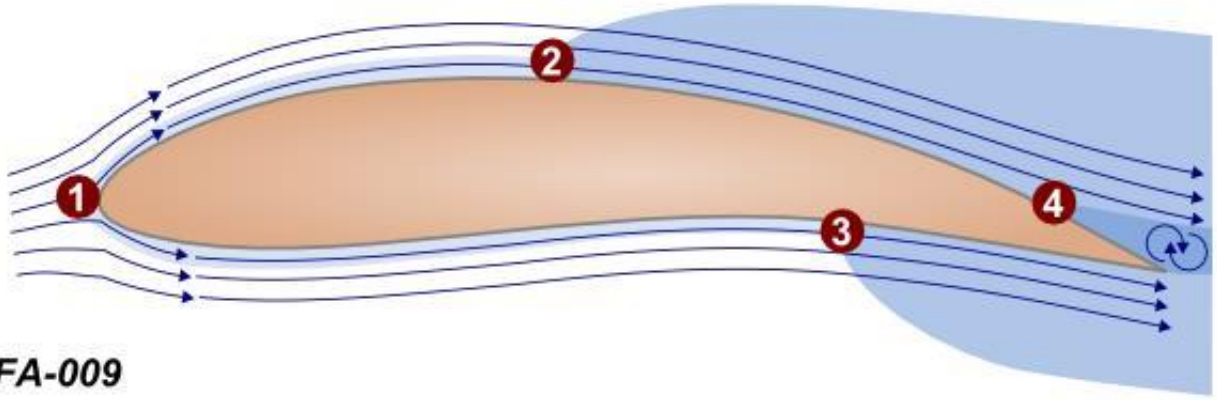
102 What is the diffeence between spin and spiral dive? (1,00 P.)

- ☐ Spin: stall at outer wing, speed constant;
  Spiral dive: airflow at both wings, speed increasing rapidly
- ☑ Spin: stall at inner wing, speed constant;
  Spiral dive: airflow at both wings, speed increasing rapidly
- ☐ Spin: stall at outer wing, speed increasing rapidly;
  Spiral dive: airflow at both wings, speed constant
- ☐ Spin: stall at inner wing, speed increasing rapidly;
  Spiral dive: airflow at both wings, speed constant

Anlage 1

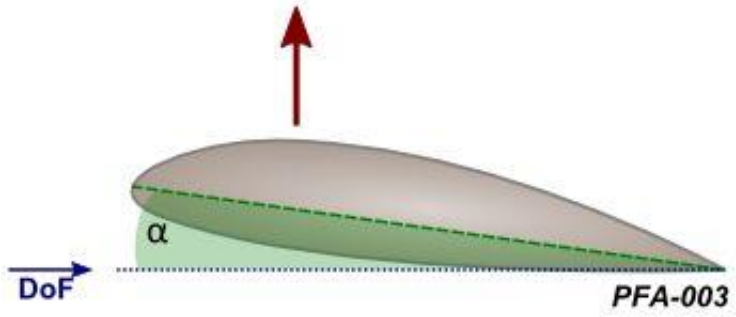


Anlage 2

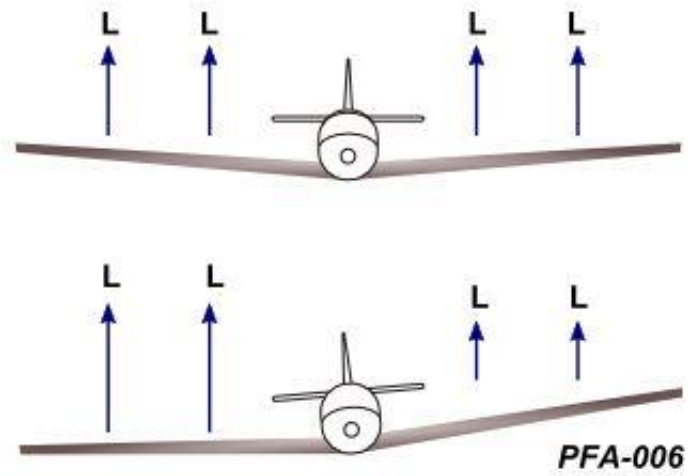


PFA-009

Anlage 3



Anlage 4



Anlage 5