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(Excerpt)

51 – Principles of Flight (Aeroplane)

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1 With regard to the forces acting, how can stationary gliding be described? (1,00 P.)

- ☐ The sum of air forces acts along the direction of air flow
- ☐ The sum the air forces acts along with the lift force
- ☐ The lift force compensates the drag force
- ☑ The sum of air forces compensates the gravity force

2 What is the result of extending flaps with increasing aerofoil camber? (1,00 P.)

- ☐ Maximum permissable speed increases
- ☐ Minimum speed increases
- ☑ Minimum speed decreases
- ☐ C.G. position moves forward

3 Following a single-wing stall and pitch-down moment, how can a spin be prevented? (1,00 P.)

- ☐ Deflect all rudders opposite to lower wing
- ☑ Rudder opposite lower wing, releasing elevator to build up speed
- ☐ Pushing the elevator to build up speed to re-attach airflow on wings
- ☐ Pulling the elevator to bring the plane back to normal attitude

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

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

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

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

6 Considering longitudinal stability, which C.G. position is most dangerous with a normal gliding plane? (1,00 P.)

- ☐ Position beyond the front C.G. limit
- ☐ Position too far aside permissable C.G. limits.
- ☐ Position far back within permissable C.G. limits
- ☑ Position beyond the rear C.G. limit

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

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

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

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

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

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

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

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

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

- ☑ center of pressure.

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

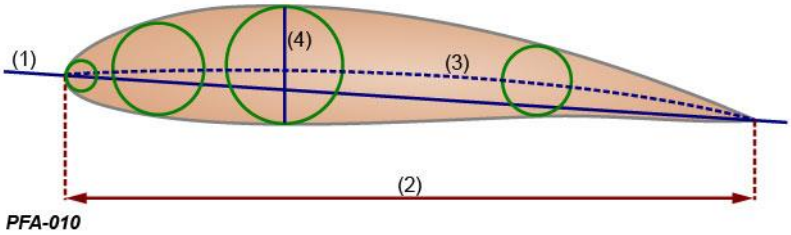
- ☐ only the resulting total drag.
- ☐ gravity forces of the profile.
- ☑ all aerodynamic forces of the profile.
- ☐ gravity and aerodynamic forces.

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

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

Siehe Anlage 1

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

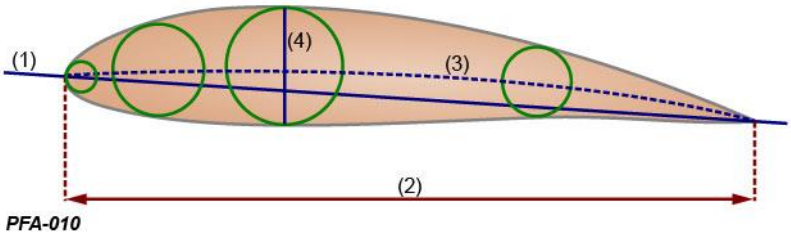


13 Number 3 in the drawing corresponds to the...

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

Siehe Anlage 1

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



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

- ☐ 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.
- ☐ the undisturbed airflow and the longitudinal axis of an aeroplane.

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

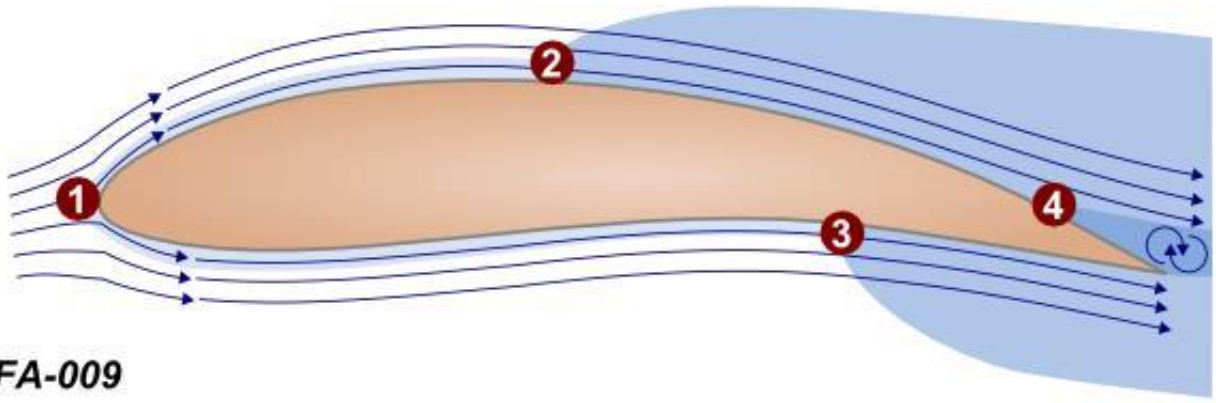
- ☐ trapezium shape.
- ☐ tapering.
- ☑ aspect ratio.
- ☐ wing sweep.

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

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

Siehe Anlage 2

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



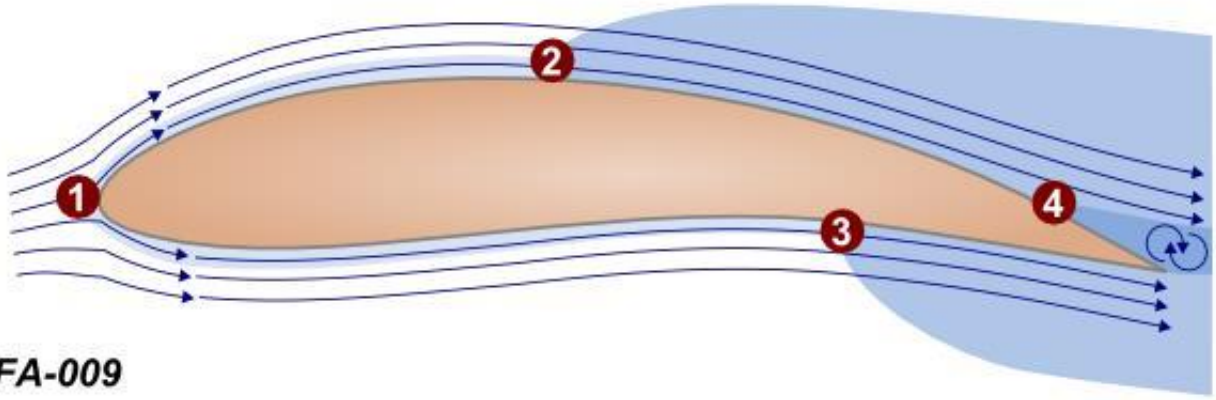
PFA-009

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

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

Siehe Anlage 2

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



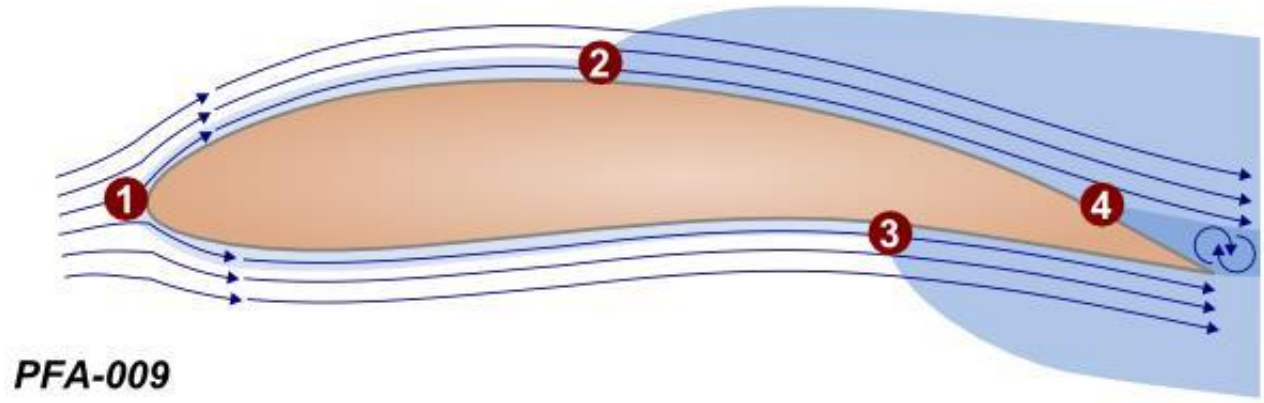
PFA-009

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

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

Siehe Anlage 2

- ☐ Center of pressure
- ☑ Stagnation point
- ☐ Separation point
- ☐ Transition 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
- ☐ All aerodynamic forces can be considered as attacking at this single point
- ☐ The laminar boundary layer changes into a turbulent boundary layer
- ☑ 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
- ☐ Pressure above remains unchanged, higher pressure is created below the profile
- ☐ High pressure is created above, lower pressure below the profile
- ☐ Pressure below remains unchanged, lower pressure is created above the profile

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

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

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

23 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

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

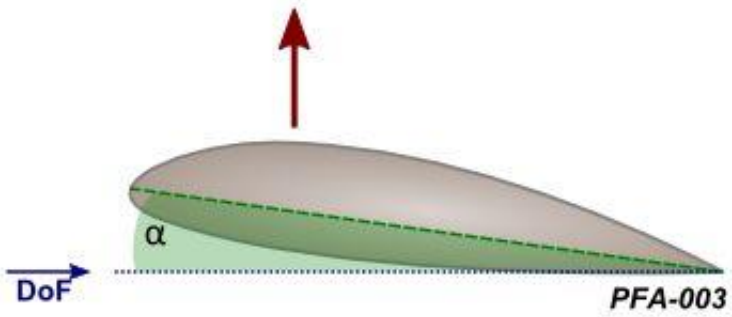
25 The angle (alpha) shown in the figure is referred to as...

See figure (PFA-003)

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

Siehe Anlage 3

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



26 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.)

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

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

- ☐ 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
- ☐ Structurally the wing is made more rigid against rotation

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

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

29 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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

- ☑ Induced drag decreases with increasing airspeed
- ☐ 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

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

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

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

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

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

- ☐ 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.
- ☐ increase the bank angle and reduce the speed.

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

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

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

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

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

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

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

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

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

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

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

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

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

- ☐ 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
- ☐ The laminar boundary layer produces lift, the turbulent boundary layer produces drag
- ☐ The turbulent boundary layer is thicker and provides less skin-friction drag

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

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

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

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

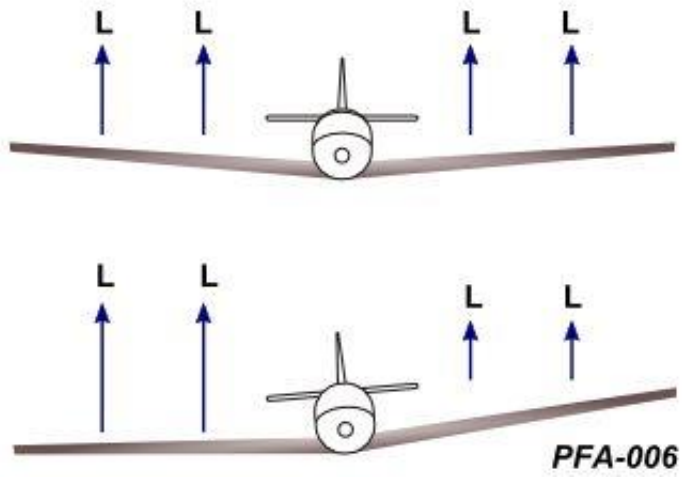
52 Which constructive feature is shown in the figure?

See figure (PFA-006)

L: Lift (1,00 P.)

Siehe Anlage 4

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



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

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

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

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

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

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

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

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

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

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

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

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

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

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

- ☑ smaller than in a climb.

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

- ☐ To stabilise the aeroplane around the longitudinal axis
- ☑ To stabilise the aeroplane around the lateral axis

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

68 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 left
- ☐ Rolling to the left, yawing to the right
- ☐ Rolling to the right, yawing to the right

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

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

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

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

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

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

72 The trim tab at the elevator is defelected upwards.

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

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

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

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

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

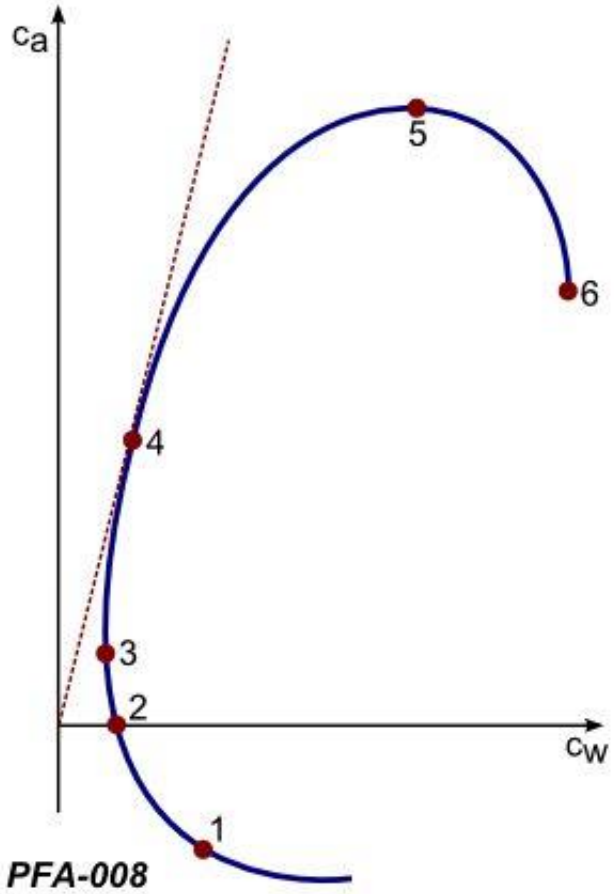
- ☐ Lower air density
- ☐ A forward centre of gravity
- ☐ Higher aeroplane weight
- ☑ An upward gust

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

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

Siehe Anlage 5

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



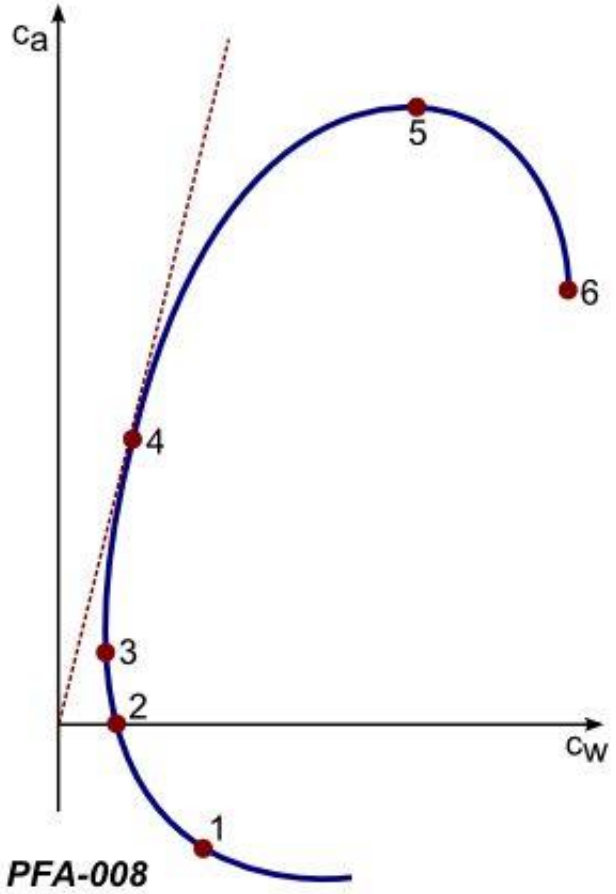
PFA-008

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

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

Siehe Anlage 5

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



77 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 smaller 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.

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

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

79 During approch to the next updraft, the vertical speed indicator reads 3 m/s descent. Within the updraft you expect a mean rate of climb of 2 m/s.

According McCready, how should you adjust the speed during approach of the updraft? (1,00 P.)

☐ The McCready ring should be set to 2 m/s,
the recommended speed can be read at the McCready scale next to the sum of current rate of descent at expected rate of climb (5 m/s).

☐ The McCready ring should be set to 3 m/s,
the recommended speed can be read at the McCready scale next to the expected rate of climb (2 m/s).

☑ The McCready ring should be set to 2 m/s,
the recommended speed can be read at the McCready scale next to the current rate of descent (3 m/s).

☐ Outside of thermal cells, the McCready ring should be set to 0 m/s,
the recommended speed can be read at the McCready scale next to the current rate of descent (3 m/s).

80 A sailplane is operated with additional water ballast.

How do best gliding angle and speed of best glide change, when compared to flying without water ballast? (1,00 P.)

☐ best gliding angle descreases,
best glide speed decreases.

☑ best gliding angle remains unchanged,
best glide speed increases.

☐ best gliding angle remains increases,
best glide speed increases.

☐ best gliding angle remains unchanged,
best glide speed decreases.

81 What has to be considered when operating a sailplane with water ballast? (1,00 P.)

☐ Best glide angle decreases.

☐ Significant CG shifts.

☐ Best glide speed decreases.

☑ It should stay below freezing level.

82 What has to be considered when operating a sailplane equipped with camper flaps? (1,00 P.)

- ☐ During approach and landing, camber must not be changed from negative to positive.
- ☑ During approach and landing, camber must not be changed from positive to negative.
- ☐ During winch launch, camber must be set to full negative.
- ☐ During winch launch, camber must be set to full positive.

83 Extending airbrakes results in ... (1,00 P.)

- ☐ less drag and more lift.
- ☑ more drag and less lift.
- ☐ more drag and more lift.
- ☐ less drag and less lift.

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

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

85 What engine design at a Touring Motor Glider (TMG) results in least drag? (1,00 P.)

- ☐ Engine and propeller mounted fix on the fuselage.
- ☑ Engine and propeller mounted stowable on the fuselage
- ☐ Engine and propeller mounted fix at the aircraft's nose
- ☐ Engine and propeller mounted fix at the horizontal stabilizer

86 At stationary glide and the same mass, what is the difference when using a thick airfoild instead of a thinner airfoil? (1,00 P.)

- ☑ more drag, same lift
- ☐ less drag, less lift
- ☐ more drag, less lift
- ☐ less drag, same lift

87 What is shown by a profile polar? (1,00 P.)

- ☐ ratio between minimum rate of descent and best glide
- ☐ ratio between total lift and drag depending on angle of attack
- ☑ ratio of cA and cD at different angles of attack
- ☐ lift coefficient cA at different angles of attack

88 The glide ratio of a sailplane can be improved by which measures? (1,00 P.)

- ☐ higher airplane mass, thin airfoil, taped gaps between wing and fuselage

- ☐ lower airplane mass, correct speed, retractable gear
- ☑ Cleaning, correct speed, retractable gear, taped gaps between wing and fuselage
- ☐ forward C.G. position, correct speed, taped gaps between wing and fuselage

89 What effect is referred to as "adverse yaw"? (1,00 P.)

- ☐ Aileron operation results in a yaw to the desired side due to less drag at the down-deflected aileron
- ☐ Rudder operation results in a rolling moment to the opposite side due to more lift generated by the faster moving wing.
- ☐ Aileron operation results in a yaw to the opposite side due to more drag at the up-deflected aileron
- ☑ Aileron operation results in a yaw to the opposite side due to more drag at the down-deflected aileron

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

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

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

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

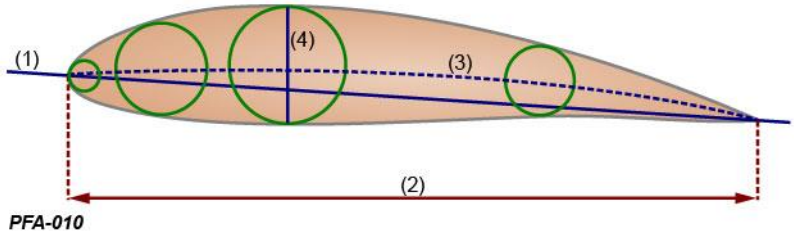
91 What is the diffeence between spin and spiral dive? (1,00 P.)

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

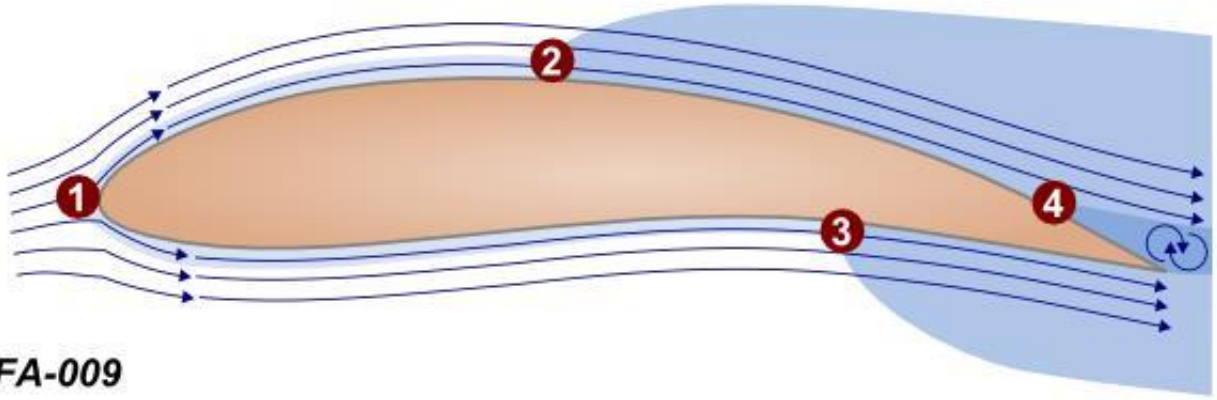
- ☑ Spin: stall at inner wing, speed constant;
  Spiral dive: airflow at both wings, speed increasing rapidly
- ☐ Spin: stall at outer wing, speed constant;
  Spiral dive: airflow at both wings, speed increasing rapidly

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

Anlage 1



Anlage 2



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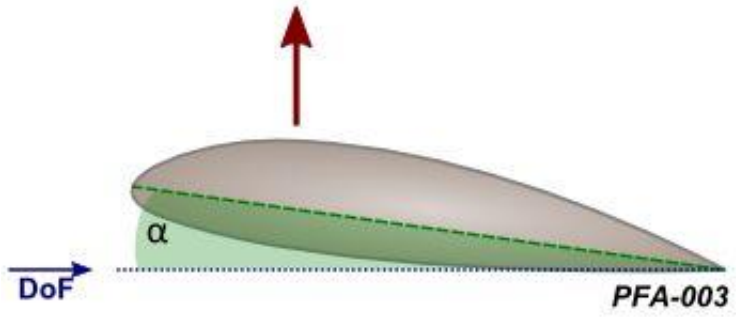
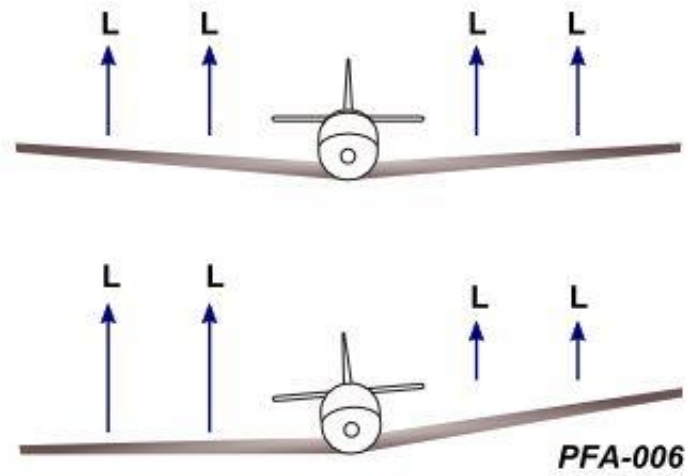
Anlage 3



Anlage 4



Anlage 5