2023 GRADING JUDGE EXAM

Welcome to the 2023 Grading Judge Exam. The goal is to ensure that you are familiar with Aresti notation and the IAC Rule Book.

The process for becoming a judge is documented in the IAC Policy and Procedure manual, Section 214.

We hope that the Introduction to IAC and the Aresti Language and the Practical Aerobatic Judging courses, along with home study of the IAC Official Contest Rules, has well prepared you to post a high score here. The exam is open book and has no time limit. Each question comes with one or more hints that direct you to the relevant part(s) of the Rule Book.

Please pay close attention to the wording of the questions. In some cases you'll be asked to identify the answer that is **INCORRECT**. Other questions ask about what a judge **MUST** do (meaning they have no discretion) or what a **MINIMUM** downgrade should be (i.e., where the Rule Book mentions a penalty of "at least...").

Good luck, thank you for investing time in the judging program, and we look forward to seeing you on the Judges Line!

QUESTION 1

New applicants for Regional Judge:

(Hint: IAC Policy and Procedure #214, part 214.5)

- A. Must complete the Grading Judge Exam within same calendar year as the most recent Judges School that they attended
- B. May request a Senior Grading Judge to select another Judge to jointly administer an oral/written exam prior to receiving a passing grade on the Grading Judge Exam
- C. Must have received credit for completing the IAC "Practical Aerobatic Judging" training within the current or previous contest year prior to application
- D. Must have performed the duties of Assistant to a Grading Judge for no less than 40 flights within the current or previous contest year prior to application, unless they have previously flown in IAC competition

An Aresti Basic Figure is defined as:

- A. Any maneuver that's suitable for the Primary and Sportsman categories
- B. Any figure in Families 1 through 8
- C. Any figure that has no added rolls
- D. Any figure that does not involve negative G's

QUESTION 3

Aresti Complementary Figures are:

- A. Found in Family 9
- B. Rotational elements such as aileron rolls, snaps, and spins
- C. Mandatory for certain Basic Figures
- D. All of the above

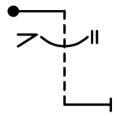
QUESTION 4

A half-arc symbol on a Basic Figure, such as the 45° line below, indicates that:



- A. You may place any roll, or roll combination, at that location
- B. You **must** add a roll, or roll combination, at that location
- Any roll, or roll combination, must result in a 180° change of attitude
- D. Both B and C

The roll symbols on the catalog drawing below indicate that:



- A. Rolls are optional on the vertical down line
- B. Any type of roll, or roll combination, may be placed on the vertical down line
- C. Any roll, or roll combination, must be a multiple of 90°
- D. All of the above

QUESTION 6

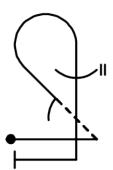
On a sequence form, rolls on vertical lines never affect the way a Basic Figure is drawn.

True

False

QUESTION 7

In the figure below, the sharp corners indicate:



- A. A change of attitude that is less than 180°
- B. The pilot should pull maximum G at those points
- C. There should be a constant radius transitioning from one straight line to the next
- D. Both A and C

When constructing a roll combination:

- A. If the unlinked rolls are of the same type (i.e., two aileron rolls or two snap rolls) they may be in the same or opposite directions
- B. If the tips of the symbols are drawn in opposite directions, the pilot may fly the first roll in either direction as long as the second roll is flown in the opposite direction
- C. The maximum rotation for any roll **combination** is 1440° (i.e., 4 x 360°)
- D. Both B and C

QUESTION 9

Heading is the compass direction in which the airplane is pointed and in competition is judged:

(Hint: Rule 27.5.2)

- A. Relative to the actual wind aloft
- B. Relative to the X or Y axis, as appropriate
- C. Relative to the wind arrow on the sequence diagram
- D. Any of the above

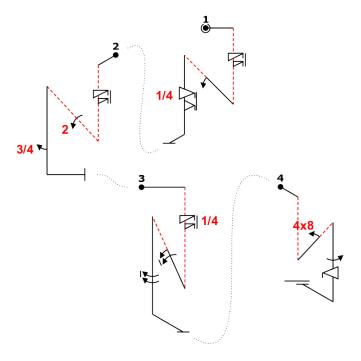
QUESTION 10

Flight path is defined as:

(Hint: Rule 27.1.1)

- A. The attitude of the aircraft relative to the horizon
- B. The trajectory of the airplane's center of gravity
- C. Compared with the true horizon for horizontal flight
- D. Both B and C

In the sequence below, which Basic Figure is **DIFFERENT** than the others? (Hint: Aresti Catalog, Family 1.3)



- A. Figure 1
- B. Figure 2
- C. Figure 3
- D. Figure 4

QUESTION 12

Any volunteer is authorized to have guests on the judging line.

(Hint: Rule 11.2.1)

True

False

While serving as a Grading Judge, you realize that your assistant's spouse is about to enter the box. Your assistant must therefore recuse themselves for the duration of that flight.

(Hint: Rule 11.3.3)

True False

QUESTION 14

You hear the Chief Judge clear an Unlimited competitor into the box. Figure 1 of the competitor's sequence is a humpty-bump. Without Signaling (aka "wingwags"), the competitor dives into the box and flies a Cuban-8. You should:

(Hint: Rule 14.3.3)

- A. Award a 0.0 score to Figure 1 and tell your recorder to write "Wrong Figure" in the Remarks column
- B. Award a HZ to Figure 1 and tell your recorder to write "Wrong Figure" in the Remarks column
- C. Tell your recorder to write a grade in the margin in case the figure turns out to be legitimate
- D. Ignore the figure

QUESTION 15

Grading Judges assign penalties for Explicit and Implicit Interruptions.

(Hint: Rules 15.1.2, 15.2.2)

True

False

A competitor is flying a sequence with 15 figures. After successfully completing Figures 1 through 9, the competitor takes an Explicit Interruption. After signaling a restart, they repeat Figures 8 and 9, and then finish the sequence as drawn. As a Grading Judge, you should:

(Hint: Rules 15.1.5, 26.3.1(b), 26.5.2)

- A. Ignore the repeated Figures 8 and 9, and resume scoring on Figure 10
- B. Award a HZ to Figure 8 with the notation "added figure", ignore the repeated Figure 9, and resume scoring on Figure 10
- C. Award a HZ to Figure 9 with the notation "added figure" and resume scoring on Figure 10
- D. Award a HZ to Figure 10 with the notation "added figure"

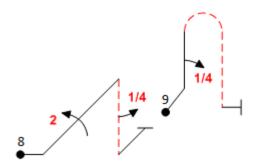
QUESTION 17

Which of the following does **NOT** meet the definition of an "implicit" program interruption?

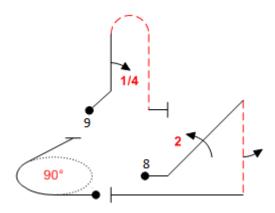
(Hint: Rule 15.2.1)

- A. Omitting a figure
- B. Adding a half slow roll to correct an improper attitude (upright to inverted or vice versa) between figures
- C. Correcting a heading deviation of 90° or more between figures
- D. Flying a horizontal portion of a figure such that the obvious intent is to gain or lose altitude

The competitor is to fly the sequence of figures below.



You are a Grading Judge and you observe the competitor the following maneuvers instead:



You should:

(Hint: Rules 15.2.1(a), 26.3.1(b), 26.5.1)

- A. Award a 0.0 for Figure 8 and a 0.0 for Figure 9 because the 90° turn is an added figure
- B. Award a HZ for Figure 8, ignore the turn, and grade Figure 9
- C. Award a HZ for Figure 8 and a 0.0 for Figure 9 because the 90° turn is an inserted figure
- D. Award a HZ for Figure 8 and a HZ for Figure 9 because the 90° turn is an inserted figure

Just before a competitor begins a Free Program Performance, you notice that one of their sequence drawings depicts a hammerhead with ½ roll on the downline while the other drawing depicts the same figure as having 1½ rolls on the downline. How should you evaluate that figure?

(Hint: Rule 21.5.2)

- A. Use the Aresti catalog numbers to determine which roll to expect
- B. Use the drawing on the form that corresponds to the official wind (B, C, L, or R)
- C. Award a HZ
- D. Award an 'A' for Average

QUESTION 20

While grading competitors, you must:

(Hint: Rule 26.1.1)

- A. Ignore purely stylistic differences such as slow graceful flying vs fast-paced
- B. Do your best to avoid any preconceptions about the competitor or their aircraft
- C. Avoid the temptation to adjust your scores based on the difficulty of the figures
- D. All of the above

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- D. All of the above

Judges must **NOT** await until the end of a figure to deduct for any imperfections.

(Hint: Rule 26.1.4)

True

False

QUESTION 22

Grading Judges must use **ONLY** the scoring criteria specified in the Rule Book.

(Hint: Rule 26.1.9)

True

False

QUESTION 23

Absent any other problems, Grading Judges must award a score of 0.0 for a figure that has 10 or more points of cumulative downgrades.

(Hint: Rule 26.2.1(a))

True

False

QUESTION 24

A competitor flies a figure with several major errors in heading and flight path, and you award a score of 0.0. Which of the following would be an appropriate entry in the Remarks column?

(Hint: Rule 26.2.2)

- A. By definition, a score of 0.0 means at least ten points of deductions, so there's no need to write anything in the Remarks column
- B. "Wrong figure"
- C. "Ugly figure"
- D. "Many angular errors"

While grading a complex figure, you tally ten points of deductions and then the competitor finishes the figure in the wrong direction. You should:

(Hint: Rule 26.2.3)

- A. Award a score of 0.0
- B. Award a score of HZ
- C. Ask the Chief Judge to call a Conference
- D. Tell your Recorder to write "A for Average"

QUESTION 26

A competitor is supposed to fly this double snap roll:

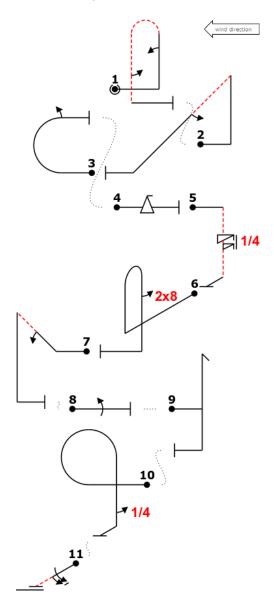


But instead of rotating 720°, the aircraft rotates 780° (i.e., 60° too far). Assuming the figure has no other faults, you should:

(Hint: Rules 26.2.1(a), 26.3.1(c))

- A. Award a -2.0 (60° error x 1 point per 5 degrees = 12 points, deducted from every figure's starting score of 10.0)
- B. Award a 0.0
- C. Award a HZ
- D. Either B or C

The competitor flies the following sequence as drawn until figure 6, which finishes going upwind. The competitor continues flying the rest of the figures with no Interruptions.



You MUST:

(Hint: Rules 26.3.1(c), 26.8.1, 26.8.3)

- A. Hard Zero (HZ) figure 6
- B. Hard Zero (HZ) figures 6, 7, 8, 9, and 10
- C. Hard Zero (HZ) figures 6 through 11
- D. Grade all the figures because turns that change the flight path from the Y axis to the X axis are non-directional

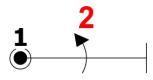
Under what circumstances would you award a mark of 'A' for Average?

(Hint: Rule 26.4.1)

- A. Your assistant calls the wrong figure by mistake, causing confusion about what the competitor is doing
- B. The competitor executes a hammerhead pivot behind a cloud
- C. You miss the beginning of Figure 1 because no one yelled "heads up!"
- D. All of the above

QUESTION 29

As you watch a two-point hesitation roll, you're unsure if the roll stopped completely when the aircraft was inverted.

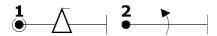


You should:

(Hints: 26.5.1, 28.21.5)

- A. Award a HZ because the pause was not long enough for you to be certain
- B. Give the pilot the benefit of the doubt, and therefore no deduction
- C. Award an 'A' for average
- D. Answer B or C

A competitor flies these two figures:



You see the snap roll stop 10° too soon. Then the pilot draws a horizontal line, corrects the bank angle, draws another horizontal line, and performs the slow roll.

Assuming no other errors, you should deduct two points for the over-rotation and two points for the correction.

(Hint: Rule 26.6.1)

True

False

QUESTION 31

A competitor flies these two figures:



You see the snap roll stop 10° too soon. Then the pilot draws a horizontal line and begins the slow roll with the wings still 10° from level.

Assuming no other errors, you should deduct two points from the snap roll and two points from the slow roll.

(Hint: Rules 26.6.3, 26.6.4)

True

False

As competitor flies this figure:



you see the snap roll stop 10° too soon. Then the pilot performs the slow roll starting with the wings 10° from level.

Assuming no other errors, you should deduct two points for the under-rotated snap roll and two points for not fixing the bank angle before starting the slow roll.

(Hint: Rule 26.6.2)

True

False

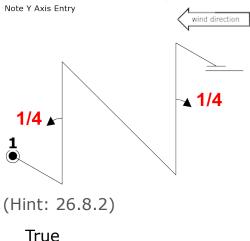
QUESTION 33

A competitor is supposed to fly a loop followed by a hammerhead. However, after 360° of pitch change -- i.e., the entire loop -- the aircraft continues to pitch up directly into the hammerhead. You should:

(Hint: Rule 26.7.1)

- A. Deduct two points from the loop
- B. Deduct one point from the loop and one point from the hammerhead
- C. Award a HZ for the loop
- D. Award a HZ for the loop and the hammerhead

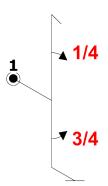
The 45° line in the following figure **MUST** be flown into the wind:



True False

QUESTION 35

When performing the following maneuver the competitor **MUST**:



(Hint: Rules 26.8.2, 26.8.3)

- A. Pivot the aircraft into the wind at the top of the maneuver
- B. Pivot the aircraft downwind at the top of the maneuver
- C. Fly the 1/4 and 3/4 rolls in the same direction
- D. Fly the 1/4 and 3/4 rolls in opposite directions

The Zero-Lift Axis is:

(Hint: Rules 27.2, 27.3, 27.4)

- A. The same as the longitudinal axis on some, but not all, aerobatic aircraft
- B. Used as a reference when judging vertical lines
- C. Used as a reference when judging 45° lines
- D. All of the above

QUESTION 37

A horizontal line should be flown:

(Hint: Rules 27.5.1, 27.5.2, 34.19.3.1)

- A. Parallel to the X or Y axis
- B. At a constant altitude in powered aircraft
- C. At any reasonable angle in gliders
- D. All of the above

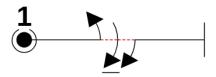
QUESTION 38

Errors in the roll, pitch, and/or yaw axes should be downgraded by:

(Hint: Rules 27.6.1)

- A. At least 0.5 points for any noticeable deviation
- B. 1 point per 5° of deviation
- C. 10 points for deviations between 50° and 90°
- D. All of the above

A competitor is flying the following figure:



You notice that the roll rate during the half-roll was considerably slower than the roll rate during the roll-and-a-half. You should downgrade the figure for the difference in the two roll rates.

(Hint: Rule 27.8.1)

True False

QUESTION 40

The competitor is flying the following figure:



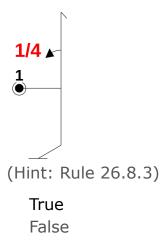
You notice that there no pause between the snap roll and the aileron roll. The correct mark for this figure is HZ.

(Hint: Rules 26.3.1(d), 27.8.2)

True

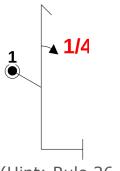
False

When flying the following figure, the competitor is free to perform the quarter-roll in either direction:



QUESTION 42

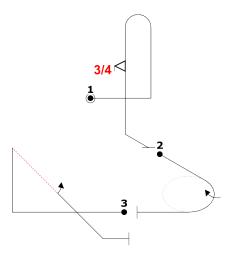
When flying the following figure, the competitor is free to perform the quarter-roll in either direction:



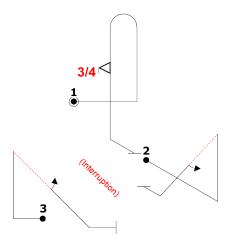
(Hint: Rule 26.8.1)

True False

The competitor was supposed to fly these figures:



But flew these figures instead:



You should:

(Hint: Rules 26.3.1, 26.5.2)

- A. Award a HZ for replacing the Figure 2 rolling turn with the Y-axis Shark's Tooth, then score Figure 3 as usual
- B. Award a HZ on Figure 2 for omitting the rolling turn, award a HZ on Figure 3 for flying the Shark's Tooth on the wrong axis, ignore the second execution of the Sharks' Tooth, and resume grading on Figure 4 (not shown)
- C. Award a HZ on Figure 2 for omitting the rolling turn, award a HZ on Figure 3 for flying the Shark's Tooth on the wrong axis, award a HZ on Figure 4 (not shown) for adding the second Shark's Tooth, then resume grading on Figure 5
- D. Ask the Chief Judge to call a conference to review what happened

As a competitor pulls to a vertical line, you note the pitch attitude (ZLA) reach 95°, but immediately return to 90°. The appropriate downgrade for that error is:

(Hint: Rules 26.6.1, 27.6.1)

- A. Not more than 1 point
- B. 1 point
- C. 1 point for the over-pitch plus 1 point for the correction
- D. No downgrade because the aircraft attitude never stabilized at 95 degrees

QUESTION 45

A competitor flies the figure shown below:



You observe the nose pitching towards the aircraft canopy as the aircraft begins to autorotate. As the aircraft reaches inverted flight, you observe that the aircraft has returned to the original attitude and the tail is no longer rotating off-axis in a corkscrew motion. The aircraft continues this on-axis rotation until it returns to wings level flight. Assuming no other flaws, the appropriate score for this figure is:

(Hint: Rules 26.3.1(c), 26.9.1, 28.22.2, 28.22.7)

- A. 10.0
- B. 0.0
- C. 5.0
- D. HZ

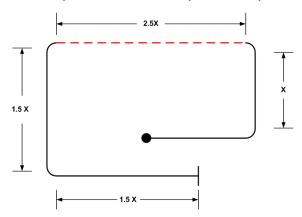
A competitor who flies a vertical line like the one below should receive a deduction for "positive upline":



(Hint: Rules 27.2.1, 27.3.1)

True False

A competitor flies a square loop that looks like this:

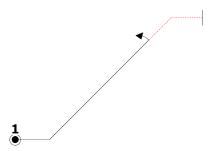


How many points should you deduct for the line length variations?

(Hint: Rules 27.9.4, 27.9.5, 28.12.2)

- A. 5.5 points
- B. 5.0 points
- C. 4.5 points
- D. 4.0 points

A competitor flies a 45° upline with a half-roll. The resulting figure looks like this:



Assuming the line before the roll is 500 feet long and the line after the roll is 150 feet long, you should deduct:

(Hint: Rule 27.9.4)

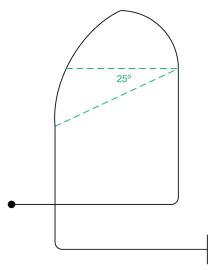
A. 1 point

B. 2 points

C. 3 points

D. 4 points

A competitor flies a Humpty Bump with a top radius that has a perfect first quarter but the second quarter is "pinched":



You **MUST** deduct:

(Hint: Rules 27.10.2, 27.10.4)

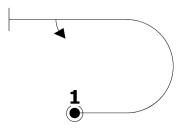
A. 1 point

B. 2.5 points

C. 5 points

D. An amount that is consistent your method for scoring radii

You see a competitor fly an Immelman that looks like this:



The appropriate deduction is:

(Hint: Rule 27.11.2)

A. 2 points

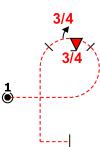
B. 1 point

C. At least 1 point

D. No downgrade

QUESTION 51

A competitor flies the following figure:



You see roll combination begin 15° before the apex of the loop and finish 25° after the apex, and the pause between the two roll elements occurs exactly at the apex. You should award a downgrade of:

(Hint: Rule 27.12.3)

A. Zero points

B. 1 point

C. 1.5 points

D. 2.0 points

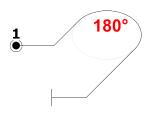
A competitor performs a loop on the X-axis while flying directly over the judges' heads. You should:

(Hint: Rules 27.15.1, 29.3.1(c))

- A. Score the figure as best you can
- B. Score the figure as best you can and make a mental note to deduct from the Presentation score at the end of the flight
- C. Score the figure as best you can, deduct two points because the figure cannot be properly graded, and make a mental note to deduct from the Presentation score at the end of the flight
- D. Tell your recorder to mark the figure as "A" for Average

QUESTION 53

At the high point of a wingover, you should deduct 1 point per 5° if:



(Hint: Rule 28.2.2)

- A. The bank angle is more or less than 90°
- B. The fuselage is not parallel to the horizon
- C. The aircraft's heading is more or less than 90° from the axis on which the figure started
- D. All of the above

QUESTION 54

The loop component of a Quarter-Clover should be judged using the same criteria as an ordinary full loop (Aresti figure 7.4.1.1).

(Hint: Rule 28.3.1)

True

False

As a competitor performs a 90° upright competition turn, you see the aircraft roll 50° without changing heading, then begin to change heading while rolling an additional 10°. After 90° of heading change, you see that the roll back to wingslevel was slower than the initial roll. Assuming no other defects, you should deduct:

(Hint: Rules 28.5.2, 28.5.4)

A. 1 point

B. 2 points

C. 3 points

D. 4 points

QUESTION 56

A competitor flies a 360° rolling turn with 4 rolls to the outside, starting from upright. You see the aircraft pass through the upright wings level attitude at 85°, 190°, 265°, and 360° of turn. Assuming no other defects, the appropriate downgrade is:

(Hint: Rules 28.4.2, 28.6.4, 28.6.5)

- A. 4 points for being off heading at the cardinal points.
- B. 1.5 to 3 points for the three variations in roll rate.
- C. No deduction because the figure finished on the correct heading
- D. 1 point for every 5° that the aircraft was off heading at the cardinal points

QUESTION 57

While watching a hammerhead pivot on a calm wind day, you see the aircraft move laterally by two wingspans. The appropriate deduction is:

(Hint: Rule 28.8.3)

A. 1 point

B. 2 points

C. 3 points

D. 4 points

A competitor completes a Hammerhead to their left with a strong wind from their right. The aircraft does not climb or descend during the pivot, and you see no heading, roll or pitch errors. However, the aircraft moves approximately two full wingspans downwind during the pivot. Your grade should be:

(Hint: Rule 28.8.5)

A. 0.0

B. 4.0

C. 7.0

D. 10.0

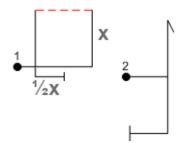
QUESTION 59

Which one of the following statements is **INCORRECT**?

(Hint: Rules 26.8.2, 28.9.2, 28.9.4, 34.19.5.1)

- A. A tailslide drawn with a dashed arc indicates that the aircraft should be inverted halfway through the pivot
- B. Any tailslide on the X axis must be flown as drawn with respect to the official wind
- C. After a tailslide pivot, the aircraft may swing past vertical without penalty
- D. A glider flying a tailslide is only required to slide by a visible amount

A competitor flies these figures:



You see that the square loop's final horizontal line is half as long as the first vertical line and then the hammerhead begins. The appropriate deduction for that fault is:

(Hint: Rules 27.9.4 and 28.12.2)

- A. Grade the square loop as a hard zero (HZ) because it was not completed before the hammerhead was started
- B. Grade the square loop a hard zero (HZ) because it was not finished before starting the hammerhead and downgrade the hammerhead by one point for no line between figures
- C. Deduct two points from the square loop for the 1:2 ratio error in the last horizontal line and give the "benefit of the doubt" for completing the square loop, but deduct one (1) additional point from both the square loop and the hammerhead for "no line between"
- D. Deduct two points from the square loop for the 1:2 ratio error in the last horizontal line

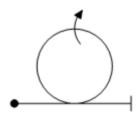
QUESTION 61

Figures in Family 7.8.1 through 7.8.16 have special criteria for:

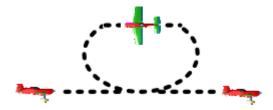
(Hint: Rules 28.16.2, 28.16.3, 28.16.4)

- A. The size of the radii
- B. The altitudes of the radii
- C. Line lengths
- D. All of the above

The competitor is flying the figure below.



The roll is flown on a straight line, like this:



The appropriate deduction for the flat spot is:

(Hint: 27.12.2)

- A. Any amount, as long as you're consistent
- B. At least 0.5 points
- C. At least 1 point
- D. At least 2 points

QUESTION 63

As a competitor executes a four-point roll, you see the aircraft slightly overrotated at each of the four stops, and the hesitation between the second and third quarter-rolls is longer than the first. The **MINIMUM** downgrade for those errors is:

(Hint: Rules 28.21.2, 28.21.4)

A. 4 points

B. 3 points

C. 2 points

D. 1 point

While watching a snap roll, you see the aircraft yaw 5° and roll 5° before any pitch change. The appropriate deduction is:

(Hint: 28.22.3, 28.22.6)

- A. HZ
- B. 0 points
- C. 1 point
- D. 2 points

QUESTION 65

Which of the following statements about spins is **INCORRECT**?

(Hint: Rules 28.24.2, 28.24.5, 28.24.7, 28.24.8)

- A. At the start of the spin, the aircraft must pitch, yaw, and roll simultaneously
- B. Once the spin is established, the aircraft must maintain a constant pitch attitude until the correct amount of rotation is reached
- C. If you perceive the aircraft spiraling throughout the entire maneuver rather than autorotating, you must award a HZ
- D. At the completion of the spin, the aircraft must pitch to vertical down and align the wings with the horizon

QUESTION 66

Which of the following statements about Presentation marks is **CORRECT**?

(Hint: Rules 29.3.1, 29.3.2)

- A. Judges give a presentation grade according to the total impression of the balanced use of the aerobatic box and over all presentation of the sequence
- B. The competitor is not required to use all the available airspace vertically or on the X and Y axes
- C. It is important that Judges apply their Presentation criteria consistently to every pilot
- D. All of the above

A **glider** competitor performs these figures:

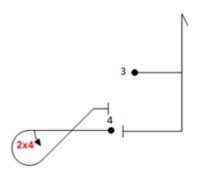


Figure 3 finishes on a line 10° up from horizontal, then the 2x4 roll is executed on the same flight path before transitioning to the looping segment of figure 4. The appropriate downgrade(s) are:

(Hint: 34.19.2.1)

- A. No points
- B. 2 points on Figure 3
- C. 2 points on Figure 4
- D. 2 points on Figure 3 and 2 points on Figure 4

QUESTION 68

In a Glider Intermediate sequence, the pilot flies an exact 45° attitude on a 45° internal line. The appropriate deduction is:

(Hint: Rules 27.4.1, 27.6.1, 34.19.1.1)

- A. None, because gliders can fly straight lines at any "reasonable angle"
- B. None, because the aircraft's attitude exactly matched the figure as drawn
- C. Three (3) points for the 15° error
- D. None of the above

You are about to grade a Four Minute Freestyle program. Which of the following is **CORRECT**?

(Hint: Rules 35.11.1, 35.12, 35.13)

- A. There are ten grading criteria
- B. Maneuvers do not have to be flown on the X and Y axes.
- C. Grades range from 0.0 to 10.0 in increments of 0.5
- D. All of the above