Racket Drawing: Oval Head, String Grid, and Grip

Original tasks 1, 2, 3 / complete keys

Task 1

A racket head is 80 mm high and 50 mm wide. What is the ratio of width to height, and is it close to the convention of two-thirds?

Answer: The ratio is 50/80 = 0.625, which is close to two-thirds (about 0.667).

Reason: Divide width by height to compare with the convention. 50 divided by 80 equals 0.625.

Check: Multiply the height by two-thirds: 80 × 2/3 ≈ 53.3 mm. The given width 50 mm is within about 3 mm, so it is close.

Task 2

A head is 72 mm wide. Using the convention, what should the grip width be? Show the arithmetic.

Answer: The grip width should be about 14.4 mm, since 72 ÷ 5 = 14.4.

Reason: The convention sets grip width to one-fifth of head width. Divide 72 by 5.

Check: Multiply the grip width by 5: 14.4 × 5 = 72 mm, which matches the head width.

Task 3

A head is 60 mm wide and 90 mm high. You want string spacing of 10 mm. How many intervals across the width and height, and how many vertical and horizontal strings if you draw one line at each interior mark?

Answer: Width: 60 ÷ 10 = 6 intervals. Height: 90 ÷ 10 = 9 intervals. Interior marks: 5 vertical strings and 8 horizontal strings.

Reason: Intervals equal the dimension divided by spacing. Interior lines are one fewer than intervals because the edges are not drawn as strings.

Check: Add the strings to the two edges: 5 + 2 = 7 vertical positions, which matches 6 intervals plus one; 8 + 2 = 10 horizontal positions, which matches 9 intervals plus one.

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Original tasks 4 / complete keys

Task 4

A drawing has a head 100 mm high and 70 mm wide, and a grip 20 mm wide. Check the two convention ratios and state whether each is acceptable within 5 mm.

Answer: Head width convention: two-thirds of 100 mm is about 66.7 mm; the drawing’s 70 mm differs by about 3.3 mm, so it is acceptable. Grip width convention: one-fifth of 70 mm is 14 mm; the drawing’s 20 mm differs by 6 mm, so it is not acceptable within 5 mm.

Reason: Compute each convention value, then subtract the drawing value to find the difference.

Check: For the head: 100 × 2/3 ≈ 66.7; 70 − 66.7 = 3.3. For the grip: 70 ÷ 5 = 14; 20 − 14 = 6.

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Source rubric / reflection

- [ ] Head is an ellipse with width about two-thirds of height.
- [ ] String grid is evenly spaced and stays inside the head.
- [ ] Grip is centered, about one-fifth of head width, and about as long as the head height.
- [ ] Construction lines are light and final lines are clear.
- [ ] Valid alternatives: slight taper, rounded grip end, or minor stylistic line weight changes are acceptable if proportions and even spacing are maintained.

Reflection: What did you check, what did you change, and what will you try next?