Draw a Plain Cross: Proportion and Shading Guide

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a cross with vertical 6 units, horizontal 4 units, crossing 2 units from the top, arm width 1 unit. State the top and bottom segment lengths.

Answer: Top segment 2 units, bottom segment 4 units; horizontal bar 4 units wide; all arms 1 unit wide.

Reason: The crossing point divides the vertical bar into 2 and 4 units because 6 minus 2 equals 4. The horizontal bar is centered, so each side extends 2 units from the vertical bar.

Check: Measure the top segment and confirm it is half the bottom segment; confirm both horizontal arms are equal.

Task 2

A cross has vertical 12 units and horizontal 6 units. The crossing point is 4 units from the top. What fraction of the vertical length is above the crossing point, and what are the two vertical segments?

Answer: The fraction is 4/12 or one third; segments are 4 units above and 8 units below.

Reason: The crossing point is 4 of 12 units from the top, which simplifies to one third. The lower segment is 12 minus 4 equals 8 units.

Check: Add the two segments to confirm 12 units; compare the top segment to one third of the total.

Task 3

Draw three crosses at vertical lengths 5, 10, and 20 units using the same ratio horizontal equals 0.6 times vertical. Give the three horizontal lengths and one arm width for each if arm width equals 0.1 times vertical.

Answer: Horizontal lengths: 3, 6, and 12 units. Arm widths: 0.5, 1, and 2 units.

Reason: Multiply each vertical length by 0.6 for the horizontal length and by 0.1 for arm width. The ratio stays constant across sizes.

Check: Divide each horizontal length by its vertical length and confirm the result is 0.6; divide each arm width by its vertical length and confirm 0.1.

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Original tasks 4 / complete keys

Task 4

A drawing has light from the upper right. Describe where to place light, middle, and dark tones on a plain cross, and give one check that shading is consistent.

Answer: Light tone on upper right faces, middle tone on side faces, dark tone on lower left edges and inner corners. Check that every arm uses the same light direction.

Reason: The light direction determines which faces receive more or less tone. Consistency means the same side of each arm is treated similarly.

Check: Trace an imaginary line from the light source and confirm darker tones fall on the opposite edges across all arms.

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Source rubric / reflection

- [ ] Vertical and horizontal lengths follow the chosen ratio within one small unit.
- [ ] Crossing point is placed at the planned fraction from the top.
- [ ] All four arm ends have equal width.
- [ ] Opposite arms match in length.
- [ ] Outline is closed and construction lines are removed or faint.
- [ ] Three distinct tones are visible and consistent with one light direction.
- [ ] Square or rounded corners are used consistently.
- [ ] Small, medium, and large crosses keep the same proportion.

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