Draw a Tombstone with Rounded Top and Engraved Lettering

Original tasks 1, 2, 3 / complete keys

Task 1

A tombstone is 8 cm wide and 14 cm tall. The arc zone is 4 cm and the base margin is 2 cm. Find the lettering zone height and the arc radius.

Answer: Lettering zone height = 14 − 4 − 2 = 8 cm. Arc radius = 8 ÷ 2 = 4 cm.

Reason: Subtract the arc zone and base margin from the total height to isolate the lettering zone. The arc radius is half the width because the rounded top is a semicircle.

Check: Add the zones: 4 + 8 + 2 = 14 cm. Measure the radius from the midpoint to the arc at left, top, and right; each should be 4 cm.

Task 2

An inscription has 5 capital letters. Each letter is 1.2 cm wide and each gap is 0.4 cm. The stone width is 9 cm. Find the total inscription width and the equal side margins.

Answer: Total width = 5 × 1.2 + 4 × 0.4 = 6 + 1.6 = 7.6 cm. Side margins = (9 − 7.6) ÷ 2 = 0.7 cm each.

Reason: Multiply letter count by letter width, multiply gap count by gap width, and add. Subtract from stone width and divide by two for equal margins.

Check: Check: 7.6 + 0.7 + 0.7 = 9 cm. Count gaps as one fewer than letters.

Task 3

A stone is 10 cm wide. The cap height is 2 cm and the x-height is 1.4 cm. The lettering zone is 10 cm tall. If the baseline sits 2 cm above the bottom of the lettering zone, how much space remains above the cap line?

Answer: Space above cap line = 10 − 2 − 2 = 6 cm.

Reason: The baseline is 2 cm above the zone bottom. The cap line is cap height above the baseline, so 2 + 2 = 4 cm from the zone bottom. Subtract from the zone height.

Check: Add from bottom: 2 cm baseline offset + 2 cm cap height + 6 cm above = 10 cm.

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Original tasks 4 / complete keys

Task 4

A tombstone is 11 cm wide and 17 cm tall. The arc zone is 5.5 cm and the base margin is 1.5 cm. The inscription has 4 letters of 1.5 cm each with 0.5 cm gaps. Find the lettering zone height, the inscription width, and the side margins.

Answer: Lettering zone height = 17 − 5.5 − 1.5 = 10 cm. Inscription width = 4 × 1.5 + 3 × 0.5 = 6 + 1.5 = 7.5 cm. Side margins = (11 − 7.5) ÷ 2 = 1.75 cm each.

Reason: Subtract arc zone and base margin for lettering height. Compute inscription width from letters and gaps. Center by dividing leftover width equally.

Check: Check zones: 5.5 + 10 + 1.5 = 17 cm. Check margins: 7.5 + 1.75 + 1.75 = 11 cm. Arc radius should be 11 ÷ 2 = 5.5 cm.

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Source rubric / reflection

- [ ] The stone is a single upright shape with two parallel sides, a flat bottom, and a rounded top.
- [ ] The rounded top is a semicircle whose radius equals half the stone width, checked at three points.
- [ ] Zone heights sum to the total height using one consistent unit.
- [ ] Lettering uses a baseline and midline, with cap height and x-height clearly marked.
- [ ] Inscription width is computed from letter widths plus gaps and centered by equal side margins.
- [ ] Letters are legible and upright; valid stylistic alternatives are accepted if spacing is checkable.
- [ ] Construction guides are light and erased or clearly subordinate in the final drawing.

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