Desert Mountains Drawing: Layered Ridges and Cacti

Original tasks 1, 2, 3, 4 / complete keys

Task 1

A hypothetical panel is 20 cm wide with 3 cm margins on each side. You place two cacti with one gap between them. Find the gap width.

Answer: The usable width is 20 minus 3 minus 3 equals 14 cm. With one gap, the gap is 14 cm.

Reason: Subtract both margins, then divide by the number of gaps, which is one.

Check: Add 3 plus 14 plus 3 and confirm the total is 20 cm.

Task 2

A background cactus is 2 cm tall, a midground cactus is 4 cm tall, and a foreground cactus is 7 cm tall. State whether the scale order is correct and why.

Answer: Yes. The heights increase from background to foreground: 2 cm, then 4 cm, then 7 cm.

Reason: Nearer objects should appear larger in this layered convention.

Check: Compare the three heights in order and confirm each nearer value is greater than the one behind it.

Task 3

On a hypothetical 24 cm tall panel, ridge guides are planned at 6 cm, 12 cm, and 18 cm from the top. Find the spacing between consecutive guides and state whether the spacing is equal.

Answer: The spacings are 12 minus 6 equals 6 cm, and 18 minus 12 equals 6 cm. The spacing is equal at 6 cm.

Reason: Subtract each guide position from the next to find the interval.

Check: Add 6 plus 6 plus 6 and confirm the last guide is 18 cm from the top.

Task 4

A foreground cactus trunk is drawn 5 cm tall with its base on the foreground ridge. Its left arm attaches 1 cm above the base. State whether the arm attachment is above the trunk midpoint and give the midpoint height.

Answer: The midpoint is 5 divided by 2 equals 2.5 cm above the base. The arm at 1 cm is below the midpoint, so it does not meet the convention.

Reason: The midpoint is half the trunk height; compare the attachment height to that value.

Check: Measure the trunk height, halve it, and confirm the arm attachment is greater than the half-height.

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Source rubric / reflection

- [ ] Three distinct ridge layers are present and labeled by position: background, midground, foreground.
- [ ] Nearer ridges overlap farther ridges at least once.
- [ ] Cacti are scaled by depth: background smallest, foreground largest.
- [ ] Each cactus trunk is upright and each arm attaches above the trunk midpoint.
- [ ] Each cactus has a visible ground contact point on a ridge or ground line.
- [ ] Spacing between cacti is checkable by simple arithmetic and consistent units.
- [ ] Valid alternatives in line style, shading, and cactus arm count are accepted if structure and scale remain correct.

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