Upside-Down Car Drawing: Inverted Body and Wheel Practice

Original tasks 1, 2, 3 / complete keys

Task 1

In a 12 cm by 8 cm frame, place wheel centers 3 cm from each side edge and 2 cm below the top edge. Place the roof line 1.5 cm above the bottom edge. State the distance between the wheel centers and the order of cues from bottom to top.

Answer: Wheel-center distance is 12 minus 3 minus 3 = 6 cm. From bottom to top: roof line, window band, wheel centers.

Reason: The frame width minus both edge margins gives the spacing. The roof line is near the bottom, so it is lowest; wheel centers are near the top, so they are highest.

Check: Measure the two edge margins to confirm they are both 3 cm, and measure the spacing to confirm 6 cm. Then cover the top edge and check that the body cues read as inverted.

Task 2

A drawing has wheel centers near the top edge but the wheel arches curve toward the top edge. Describe the orientation error and one fix.

Answer: The arches open toward the wheel side instead of the roof side, so the drawing reads as upright. Fix by redrawing each arch to open toward the roof line.

Reason: In an inverted car, the arch should curve toward the roof side. An arch curving toward the wheel side reverses the cue.

Check: For each wheel, trace the arch and confirm it opens toward the roof line. Then perform the cover test on the roof side.

Task 3

In a 9 cm by 6 cm frame, a student places the roof line 0.5 cm from the top edge and wheel centers 1 cm from the bottom edge. Identify the orientation mistake and state the corrected order.

Answer: The roof line and wheel centers are swapped. The roof line should be near the bottom edge and the wheel centers near the top edge. Corrected order from bottom to top: roof line, window band, wheel centers.

Reason: The labels roof side and wheel side fix the vertical order. Placing the roof line near the top reverses the inverted orientation.

Check: Measure the distance from each cue to its labeled frame edge. The roof line should be closer to the roof side and the wheel centers closer to the wheel side.

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Original tasks 4 / complete keys

Task 4

A frame is 14 cm wide. Wheel centers are placed 4 cm from the left edge and 3 cm from the right edge. Are the edge margins similar? State one adjustment and the resulting spacing if the left margin becomes 3.5 cm.

Answer: The margins are 4 cm and 3 cm, which differ by 1 cm, so they are not similar. Adjust the left margin to 3.5 cm; the spacing becomes 14 minus 3.5 minus 3 = 7.5 cm.

Reason: Similar edge margins keep the wheel placement balanced. Changing one margin changes the spacing by the same amount.

Check: Measure both margins after adjustment and confirm they are within about 0.5 cm of each other. Recalculate the spacing with consistent units.

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Source rubric / reflection

- [ ] Roof line is placed near the labeled roof side of the frame.
- [ ] Two wheel centers are placed near the labeled wheel side and are spaced with similar edge margins.
- [ ] Window band sits between the roof line and the wheel centers.
- [ ] Wheel arches open toward the roof side.
- [ ] The cover test on each side gives a clear orientation reading.
- [ ] Valid style alternatives are accepted if the cue order and arch direction remain consistent.

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