Draw a Stanced Car: Lowered Body, Cambered Wheels, and Arch Fitment

Original tasks 1, 2, 3 / complete keys

Task 1

Draw a side-profile car with a 40 mm body-to-ground gap and 0 degrees camber. Label the gap and state the camber angle.

Answer: A drawing with a baseline, a body line 40 mm above it, two wheels with tire bottoms on the baseline and no tilt, and labels reading gap 40 mm and camber 0 degrees.

Reason: The gap is the distance from baseline to the lowest body line. Zero camber means the wheel outline is not tilted, so the top and bottom of the tire align vertically.

Check: Measure the gap with a ruler; it should read 40 mm. Check that each wheel's top and bottom align on a vertical line within 1 mm.

Task 2

Draw a side-profile car with a 20 mm body-to-ground gap and 10 degrees of negative camber on both wheels. Label the gap and both camber angles.

Answer: A drawing with a 20 mm gap, both wheels tilted 10 degrees inward at the top, tire bottoms on the baseline, and labels reading gap 20 mm and camber 10 degrees on each wheel.

Reason: Negative camber tilts the top of the wheel inward. At 10 degrees, for every 10 mm of wheel height the top shifts about 1.8 mm inward (10 mm × tan 10° ≈ 1.8 mm). The gap is measured from baseline to the lowest body line.

Check: Measure the gap; it should read 20 mm. Use a protractor on each wheel's vertical reference line; both should read 10 degrees within 1 degree.

Task 3

Draw a side-profile car with a 25 mm gap, 8 degrees negative camber, and a 12 mm top arch clearance. Label the gap, camber, and top clearance.

Answer: A drawing with a 25 mm gap, wheels tilted 8 degrees inward at the top, arch lips drawn so the smallest top gap is 12 mm, and labels reading gap 25 mm, camber 8 degrees, top clearance 12 mm.

Reason: The arch is drawn after the wheel so the top clearance can be measured directly. The smallest gap at the top is the critical clearance for this exercise.

Check: Measure the gap (25 mm), the top clearance (12 mm), and the camber angle (8 degrees). Confirm the tire does not cross the arch line.

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Original tasks 4 / complete keys

Task 4

Draw a comparison panel with a stock car at a 60 mm gap and 0 degrees camber on the left, and a stanced car at a 25 mm gap and 8 degrees negative camber on the right. Label all measurements.

Answer: Two side-by-side drawings with identical body outlines and wheel sizes. Left labels: gap 60 mm, camber 0 degrees. Right labels: gap 25 mm, camber 8 degrees. Both use the same baseline.

Reason: Using the same baseline and wheel size isolates the stance change. The stanced side has a smaller gap and a nonzero camber angle, making the difference checkable.

Check: Measure both gaps (60 mm and 25 mm) and both camber angles (0 and 8 degrees). Confirm the wheel size and baseline are the same on both sides.

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Source rubric / reflection

- [ ] Body-to-ground gap is measured and labeled in millimeters.
- [ ] Both tire bottoms touch the baseline.
- [ ] Camber angle is stated in degrees and applied consistently to each wheel.
- [ ] Wheel-arch clearance is measured at top, front, and rear, with the smallest value labeled.
- [ ] Tire does not cross the arch line.
- [ ] Units are consistent: millimeters for linear measurements and degrees for camber.
- [ ] All linear measurements are labeled in millimeters and camber angles in degrees.
- [ ] Comparison panel, if used, shows stock and stanced placement with matching wheel size and baseline.

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