# PRACTICE EXAM 7: ASE A4 SIMULATION (40 QUESTIONS)

**STEERING SYSTEMS DIAGNOSIS AND REPAIR (Questions 1–12)**

1. A technician is about to remove the steering wheel on a vehicle equipped with a driver airbag. The first action required is:

A. Removing the retaining nut from the steering shaft assembly

B. Disconnecting the negative battery cable and waiting for capacitor discharge

C. Prying the airbag module out of the steering wheel hub area

D. Rotating the clockspring to its fully clockwise stop position

2. A vehicle's power steering fluid is a dark brown color with visible metallic particles suspended in it. What is the correct action?

A. Flush the system, identify the source of metal contamination, and repair

B. Top off with fresh fluid to bring the level back to the full mark

C. Drive the vehicle for several hundred miles to circulate fresh fluid

D. Add a power steering additive to dissolve the metallic particles

3. A 2020 truck with column-mounted EPS produces a clicking noise only when the steering wheel is rotated at low speed. The noise originates from inside the dashboard. What is the most likely cause?

A. The steering column upper bearing is worn and allowing radial play

B. The intermediate shaft U-joint has worn needle bearings at the joint

C. The EPS motor coupling or worm gear has worn within the column

D. The power steering pressure switch is failing and cycling electrically

4. A technician performs a power steering pressure test. Pressure at idle with wheels straight reads 75 psi (spec: 50-100 psi). When the shut-off valve is closed, pressure rises to 1,250 psi (spec: 1,200 psi relief). At full lock, pressure reads only 800 psi. What is the diagnosis?

A. The rack and pinion has internal bypass and requires replacement

B. The power steering pump is worn and cannot reach relief pressure

C. The flow control valve is stuck partially open limiting flow at lock

D. The system is operating within all manufacturer specification ranges

5. Reassembling a tie rod end into a steering knuckle requires the following correct practice:

A. Tighten the castellated nut until it is snug and install the cotter pin

B. Use the original cotter pin if it is not visibly damaged from service

C. Lubricate the tapered surfaces with anti-seize before final torquing

D. Torque to specification, then tighten further to align cotter pin hole

6. A vehicle's steering wheel has excessive free play of approximately 2 inches before the road wheels respond. The vehicle uses recirculating ball steering with parallelogram linkage. What should be inspected FIRST?

A. The power steering fluid level and condition at the reservoir tank

B. The steering linkage components including idler arm and tie rods

C. The steering column intermediate shaft U-joints for worn bearings

D. The pitman arm splines for stripped or damaged tooth engagement

7. A power steering hose is leaking where it connects to the pump outlet. The technician attempts to tighten the fitting but the leak continues. What is the correct action?

A. Apply thread sealant to the fitting and retighten to specification

B. Overtighten the fitting until the leak stops completely at that point

C. Replace the hose assembly because the crimped fitting has failed

D. Install a rubber sealing washer between the fitting and the pump

8. A customer reports the steering wheel is hard to turn only during cold weather startups. After 2 minutes of warm-up, the steering operates normally. What is the most likely cause?

A. The steering angle sensor requires calibration for cold operation

B. The power steering pump has internal wear worsening at cold temperatures

C. The serpentine belt is glazed and slips more during cold operation

D. The EPS control module requires a software update for cold starts

9. A rack and pinion is leaking fluid at one bellows boot. The opposite boot is dry. What is the most likely cause?

A. The internal high-pressure rack seal has failed between chambers

B. The rack pressure spring has worn and allows fluid bypass at center

C. The rack pinion seal is leaking at the input shaft of the gear assembly

D. The inner tie rod seal on the leaking side has failed internally

10. A 2022 sedan arrives with an EPS warning light. The scan tool shows a DTC for "motor circuit phase fault." Scan tool live data shows motor current readings are normal at rest. What is the most likely cause?

A. The EPS motor has failed internally and requires rack replacement

B. The EPS control module has an output driver fault at the motor

C. The wiring harness between the module and motor has damaged insulation

D. The torque sensor is sending conflicting signals to the EPS module

11. A technician installs a clockspring and then installs the steering wheel on a vehicle with the road wheels straight ahead. The driver is able to turn the wheel only 1.5 turns to the left before it stops hard, while right rotation is normal at 2.75 turns. What is the most likely cause?

A. The clockspring has an internal fault and requires a new replacement

B. The road wheels were not straight when the clockspring was installed

C. The steering column has a mechanical stop that is engaging early now

D. The clockspring was not centered before the steering wheel installation

12. A vehicle with hydraulic power steering has a return line that has collapsed internally. What symptom is most likely?

A. Foamy fluid in the reservoir and intermittent pump whine during operation

B. Higher-than-normal operating fluid temperature and potential fluid breakdown

C. Excessive pressure spikes at the pump outlet during parking-lot maneuvers

D. Loss of assist only during highway-speed driving above 50 miles per hour

**SUSPENSION SYSTEMS DIAGNOSIS AND REPAIR (Questions 13–24)**

13. A technician is performing a ball joint inspection on a pickup truck with the coil spring on the lower control arm. The correct procedure for inspecting the load-carrying lower ball joint is:

A. Place a pry bar between the lower control arm and the frame to unload it

B. Lift the vehicle and let the wheels hang free to inspect the joint

C. Leave the vehicle at curb height and shake the wheel at 3 and 9 o'clock

D. Remove the ball joint from the knuckle for direct inspection off vehicle

14. A vehicle has developed a harsh ride quality over small bumps. The customer reports the ride became noticeably harsher over the past month. Tire pressures are at specification. What should be inspected NEXT?

A. The tire brand and model for unusually stiff sidewall construction

B. The wheel alignment for excessive camber at all four wheel positions

C. The control arm bushings for deterioration allowing metal-on-metal contact

D. The shock absorbers or struts for internal failure causing the harsh ride

15. A vehicle equipped with electronically controlled air suspension has been lifted on a two-post hoist. The technician begins to remove a control arm. Which step should have been performed BEFORE lifting?

A. Disconnecting the battery to remove all power to the air suspension system

B. Draining the air suspension system by releasing pressure at all four corners

C. Disabling the air suspension system per the manufacturer's specified procedure

D. Starting the engine and running the compressor to full rated system pressure

16. A stabilizer bar bushing at the frame mount has cracked and separated. The most likely symptom is:

A. Squeaking noise during suspension articulation and body roll events

B. Clunking noise over bumps during straight-line driving at low speed

C. Reduced power steering assist during parking-lot maneuvering at idle

D. Excessive tire wear on the outside edges of both front tires equally

17. A pickup truck has a leaf spring rear suspension. The technician notices the vehicle sits approximately 2 inches lower than specification on the left rear only. The leaf spring appears intact on visual inspection. What should be checked NEXT?

A. The rear stabilizer bar end link on the affected side of the vehicle

B. The rear shock absorber for fluid leakage or mounting damage

C. The tire pressure on the left rear tire compared to the placard spec

D. The individual leaf spring leaves for broken or separated main leaf

18. A multi-link IRS has an adjustable toe link with a turnbuckle-style adjuster. The technician cannot turn the adjuster — it is seized from corrosion. What is the correct action?

A. Apply heat to the turnbuckle to free the threads from corrosion

B. Strike the turnbuckle with a hammer to break the corrosion bond free

C. Replace the toe link assembly with a new unit and perform alignment

D. Leave the alignment out of specification and document on the printout

19. A coil spring has been removed from a strut assembly using a spring compressor. While the spring is compressed and removed, the technician notices the spring has a visible crack in one of the coils. What is the correct action?

A. Continue the service and reuse the spring because it has been under load

B. Replace the spring with a new unit, and replace the opposite side as well

C. Grind out the crack and weld the spring to restore its original strength

D. Install the spring in a different orientation to move the crack out of the load path

20. A vehicle with MagneRide dampers has a DTC for a right rear damper open circuit. A wiring harness inspection reveals a chafed section of wire with broken insulation near the damper connector. What is the correct repair?

A. Wrap the chafed section with electrical tape and clear the DTC from memory

B. Splice in a new section of wire and solder the connection under heat shrink

C. Replace the MagneRide damper because the internal coil has failed internally

D. Repair the harness per manufacturer procedure using approved splice methods

21. A ride height measurement shows the front axle is 1/2 inch below specification and the rear axle is 1/2 inch above specification. The vehicle rake (front-to-rear relationship) is therefore 1 inch off from spec. What is the most likely cause?

A. Sagged front coil springs combined with a load in the rear cargo area

B. Incorrect aftermarket springs installed during a previous service event

C. The air suspension system has miscalibrated and ride heights are off

D. The alignment equipment heads are reading incorrectly and need service

22. A vehicle's front subframe has been replaced due to collision damage. After reinstallation, the alignment is significantly out of specification and cannot be corrected through normal adjustment range. What is the most likely cause?

A. The replacement subframe is defective and does not meet specifications

B. The alignment machine requires recalibration after the subframe service

C. The subframe was not centered using manufacturer-specified centering pins

D. The power steering rack needs to be re-centered before alignment service

23. A stabilizer end link is being replaced on a vehicle. The new link has a ball stud at each end that threads into the stabilizer bar at one end and into a bracket on the strut at the other. Which practice is correct during installation?

A. Torque the fasteners immediately to final specification without initial positioning

B. Tighten the fasteners to a snug fit, then torque to specification at ride height

C. Torque the fasteners with the vehicle on jack stands at full suspension droop

D. Use anti-seize compound on the threads and torque to a slightly higher spec

24. A vehicle with air suspension has one air spring that inflates and deflates repeatedly during idle with no driver input. Scan tool data shows the ride height sensor at that corner is reporting a value that fluctuates 1.5 inches while the vehicle sits still. What is the most likely cause?

A. The compressor is failing and cannot maintain stable air pressure

B. The air spring has an internal restriction causing pressure fluctuations

C. The air suspension control module has an intermittent internal fault

D. The ride height sensor linkage or connection is intermittent at the corner

**WHEEL ALIGNMENT DIAGNOSIS, ADJUSTMENT, AND REPAIR (Questions 25–35)**

25. A vehicle has the following front alignment readings: left camber 0.0°, right camber +1.2°, both within tolerance of 0° ± 1.5°. Both sides are technically "in spec." The vehicle exhibits a noticeable pull at highway speed. What is the cause?

A. Cross-camber of 1.2° creates a pull toward the right, more-positive side

B. The absolute camber values are too close to zero causing directional instability

C. The front toe total must be asymmetric to cause the pull at highway speed

D. The pull is caused by road crown and is normal for the vehicle condition

26. A technician is setting front toe after rear toe has been adjusted to center the thrust line. The steering wheel must be:

A. Turned to full lock position in either direction for proper toe measurement

B. Physically centered and held in place with a steering wheel holder device

C. Removed from the steering shaft for access to the splines during adjustment

D. Disconnected electronically by disabling the EPS system at the scan tool first

27. A vehicle's front camber reads -0.5° on the left and -0.5° on the right. The included angle is 12.5° on the left and 14.0° on the right. SAI specification is 13.0° ± 0.5°. What does the included angle mismatch indicate?

A. The alignment equipment requires recalibration by the service department

B. The left and right tire pressures are different and causing the reading error

C. The ride height is out of specification on one side of the vehicle

D. The right front steering knuckle is bent, likely from an impact event

28. A vehicle has rear toe that is not adjustable (torsion beam rear suspension). The rear toe reads 0.30° out-of-spec on one side only. What is the correct repair approach?

A. Inspect the torsion beam and trailing arms for bent or damaged conditions

B. Adjust the front toe to compensate for the rear asymmetry during alignment

C. Rotate the tires to equalize wear patterns caused by the out-of-spec toe

D. Document the condition and advise the customer no repair is available

29. After an alignment, the steering wheel sits 10° off-center to the right when the vehicle is tracking straight down a level road. What should the technician do?

A. Remove the steering wheel and reindex it on the splined shaft to correct it

B. Leave the condition and inform the customer it is within normal tolerance

C. Split the front toe adjustment unequally between tie rods to re-center wheel

D. Adjust the rear toe to shift the thrust angle and counteract the wheel offset

30. A vehicle is on an alignment rack. Before taking any measurements, the technician must perform:

A. A road test at highway speed to evaluate straight-line tracking before measuring

B. Wheel runout compensation on each wheel to correct for clamp offset errors

C. A caster sweep by turning the wheels lock-to-lock and recording peak values

D. A ride height measurement at each corner with the vehicle at curb weight

31. Excessive positive caster produces which effect on vehicle handling?

A. Lighter steering effort at parking-lot speeds with reduced feedback at speed

B. Outside-edge wear on both front tires with a feathered pattern visible

C. Heavier steering effort at parking speeds and stronger self-centering after turns

D. Inside-edge wear on both front tires from excessive tilt at the contact patch

32. A vehicle has a setback reading of 0.9° at the front axle. What is the most likely cause?

A. The alignment equipment is reporting incorrect measurements from clamp offset

B. Collision damage has shifted one wheel fore or aft of its designed position

C. The front tires are mismatched in size, causing a false setback reading

D. The ride height is incorrect, producing an apparent setback on the printout

33. The thrust angle is best described as:

A. The angle between the rear axle thrust line and the vehicle geometric centerline

B. The fore-aft offset between the two wheels on the same axle in degrees

C. The difference in camber readings between the left and right front wheels

D. The angular difference between front and rear wheel toe specifications

34. A vehicle's steering angle sensor has been replaced. After installation, the SAS warning light stays illuminated and the vehicle has reduced EPS assist. The technician has not yet performed any post-installation procedure. What is the correct next action?

A. Drive the vehicle at highway speed for 30 minutes to allow automatic relearn

B. Disconnect the battery for 30 minutes to force the module to reset and relearn

C. Replace the new SAS because it is defective and producing the fault code

D. Perform the manufacturer-specified SAS calibration procedure via scan tool

35. An alignment printout shows rear toe of +0.10° on the left and -0.10° on the right. Total rear toe is 0°. What condition exists?

A. The rear alignment is correct because the total adds to zero degrees

B. The thrust angle is non-zero because the left and right rear toes differ

C. The rear toe readings indicate the rear axle is bent from impact damage

D. The rear toe must be adjusted symmetrically to equalize left and right

**WHEEL AND TIRE DIAGNOSIS AND SERVICE (Questions 36–40)**

36. A customer complains of vibration felt through the seat at 60 mph. Wheel balance on all four wheels is within specification. What should be checked NEXT?

A. Rear wheel-and-tire assembly runout or road-force variation on the back axle

B. Front wheel bearings for looseness on the driver's side front wheel position

C. The engine mounts for deterioration causing vibration transmission from engine

D. The driveshaft U-joints for worn needle bearings on a rear-wheel-drive vehicle

37. A TPMS warning light comes on in cold weather (below 20°F) and stays on until the vehicle has been driven for about 20 minutes. Warmer weather does not trigger the warning. What is the most likely cause?

A. The TPMS sensors are failing in cold weather and need to be replaced

B. Tire pressures drop approximately 1 psi for every 10°F drop in temperature

C. The TPMS module is malfunctioning and requires replacement with new unit

D. The TPMS system requires a winter-specific calibration procedure at cold start

38. A wheel hub assembly has been replaced on a FWD vehicle. The axle nut used is a new torque-to-yield nut. After installation, the wheel has slight free play when rocked by hand. What is the most likely cause?

A. The wheel bearing races inside the hub assembly are defective from manufacturing

B. The axle nut requires torquing beyond the specified value to eliminate all play

C. The brake rotor was not cleaned on its hub mating surface before installation

D. The axle nut has not been torqued to final specification yet during assembly

39. A tire shows inside-edge wear with no feathering — the wear is smooth across the inner shoulder. What is the most likely cause?

A. Excessive toe-out at the front wheel causing scrubbing at the inside edge

B. Under-inflation causing the tire to ride on both shoulders during driving

C. Excessive negative camber at that wheel causing uneven tire contact at the road

D. Worn shock absorber at that corner causing cupping wear around circumference

40. A tire with a puncture in the tread area measures 3/8 inch in diameter at the damaged spot. The tire has 6/32 inch tread remaining. What is the correct service action?

A. Replace the tire because the puncture exceeds the repairable size limit

B. Repair the puncture using a combination plug/patch from inside the tire

C. Install an external string plug since the puncture is in the tread zone

D. Install an interior patch only without plugging the puncture channel itself

## Practice Exam 7: Answer Key and Explanations

1. B — SRS service always begins with disconnecting the negative battery cable and waiting the specified capacitor discharge time. The SRS module contains a backup capacitor that can fire the airbag even after battery disconnect if the wait time is skipped. No other step may be performed before this safety procedure is complete.

2. A — Dark fluid with metallic particles indicates internal component wear — typically from a failing pump or rack. Adding fluid, driving further, or using additives only spreads the contamination and accelerates wear in remaining components. The correct repair is to flush the system, identify the metal's source, and replace the worn component.

3. C — Clicking at low-speed steering from inside the dashboard on a C-EPS vehicle is the classic signature of a worn motor coupling or worm gear in the column-mounted assist unit. Intermediate shaft U-joints produce noise lower in the column; bearings produce different sounds; pressure switches don't click mechanically. Location and symptom point specifically to the EPS unit.

4. A — When the pump reaches specification pressure against a closed valve (1,250 psi) but the gear cannot reach that pressure at full lock (only 800 psi), fluid is bypassing internally within the rack. The pump is proven healthy; the rack has failed seals allowing fluid to leak past the piston. Rack replacement is indicated.

5. D — Correct procedure is to torque the castellated nut to specification and then continue tightening further (never loosening) to align the cotter pin hole. Loosening a torqued suspension fastener is never acceptable because it reduces designed clamping force. Cotter pins are also always new on reassembly.

6. B — With recirculating ball steering and parallelogram linkage, two inches of free play at the wheel is almost always mechanical wear in the linkage — idler arm bushing, tie rod sockets, or pitman arm. A dry park test with linkage inspection locates the wear before considering the gearbox or hydraulic components.

7. C — Crimped hose fittings cannot be resealed by overtightening. The crimp has either failed or the hose end has been damaged, and no amount of torque or thread sealant will restore the seal. Power steering hoses are assemblies that must be replaced when leaking at the crimp — attempting other fixes risks sudden rupture.

8. B — Power steering pumps with internal wear show the wear most dramatically when cold because fluid viscosity is higher and internal clearances are at their widest. As the pump warms, fluid thins and seals expand, normalizing operation. This "cold-only hard steering" pattern is a classic symptom of a pump approaching end of life.

9. D — An inner tie rod seal failure on one side allows fluid to migrate out through that specific bellows boot. The opposite side stays dry because its internal seal is intact. Rack internal seals would cause bilateral leakage; the pinion seal leaks at the input, not through a boot; the rack pressure spring doesn't contain fluid.

10. C — Motor circuit phase faults with normal at-rest current readings typically indicate an intermittent or load-dependent wiring issue — chafed insulation that contacts ground under motor load. The module

itself rarely fails with intermittent output; the motor would show abnormal current at rest if it were faulty. Wiring inspection is the next step.

11. D — An uncentered clockspring prevents the steering wheel from rotating its full designed range in one direction because the ribbon cable bottoms out at its internal travel limit. The asymmetric turn count (1.5 vs. 2.75) is the specific diagnostic signature — the wheel was installed without properly centering the clockspring mechanically first.

12. B — A collapsed internal return line creates a restriction that causes heat buildup in the hydraulic system because fluid cannot return to the reservoir efficiently. Sustained high temperatures cause fluid breakdown and seal damage. Foamy fluid is an air symptom; pressure spikes and speed-specific loss point elsewhere.

13. A — A load-carrying lower ball joint must be unloaded to inspect correctly. With the vehicle lifted and the wheel off the ground, placing a pry bar between the lower control arm and frame supports the arm and unloads the joint. Wheels-hanging inspection without unloading keeps the spring loading the joint and hides play.

14. D — Progressive ride harshness over a short time frame strongly suggests shock or strut failure — internal fluid loss or valve damage means the damper can no longer absorb energy smoothly. Bushings, alignment, and tire brand usually cause gradual or consistent symptoms, not month-over-month harshness progression. Shock testing is the next step.

15. C — Air suspension systems must be disabled before lifting. With the wheels off the ground, ride height sensors report extreme droop and may command sudden air release or inflation. Disabling is the manufacturer's specified procedure — not a full air drain or battery disconnect (which doesn't always disable the system).

16. A — Failed stabilizer bar bushings at the frame mount produce squeaking during suspension articulation and body roll — the cracked rubber rubs against the bar as it rotates in the mount. Bushing failures don't produce clunking on bumps (that's end links), assist complaints, or tire wear — the symptom is specifically articulation squeak.

17. D — When a leaf spring-equipped vehicle sits low on one side only and the spring appears intact visually, a broken main leaf or separated helper leaves are the most common cause — the failure may

not be obvious from the side profile. Stabilizer links, shocks, and tire pressure do not cause 2 inches of ride height loss on leaf-spring axles.

18. C — When an adjustable toe link's adjuster is seized, the correct repair is to replace the toe link. Heat, impact, and acceptance are all wrong approaches: heat can weaken the link's internal components, hammering damages the link, and leaving alignment out of spec is unacceptable. Replacement plus alignment is the repair.

19. B — A cracked coil spring must be replaced immediately, and the opposite spring should also be replaced on the same axle to maintain matched spring rates. Reusing, grinding/welding, or reorienting a cracked spring all create risk of catastrophic failure at road speed. Pair replacement is industry standard for springs.

20. D — Wiring harness repair on safety-critical systems must follow manufacturer-specified splice procedures (often requiring specific splice connectors, heat shrink, and soldering per OEM protocol). Electrical tape, generic splices, or replacing the damper without fixing the underlying wiring issue all fail to restore proper function.

21. A — Sagged front springs combined with added rear weight produce this rake pattern — front low and rear high. Aftermarket-spring installation would typically drop the front more; air suspension issues affect different symptoms; and equipment calibration wouldn't produce consistent fore-aft height differences. Investigate springs and loading first.

22. C — When subframe replacement results in uncorrectable alignment, skipping the centering procedure with manufacturer-specified alignment pins is the most common cause. Even a few millimeters of subframe offset makes alignment uncorrectable through normal cam range. The fix is repeating the installation with proper centering.

23. B — Stabilizer end links with rubber or polyurethane bushings must be torqued at ride height, not at full droop on a lift. Snug at installation, torque to specification with the suspension loaded — this preserves bushing orientation and prevents premature failure. Anti-seize on these threads is generally not specified.

24. D — Fluctuating ride height readings at idle with no driver input points to an intermittent sensor signal — typically a loose or worn linkage connection, corroded sensor connector, or a damaged sensor

internally. The compressor and air spring responses are consequences of the bad signal, not the root cause. Sensor and linkage inspection is the diagnostic step.

25. A — Cross-camber of 1.2° is significant enough to produce a clear pull toward the more-positive side (the right in this case). Individual values within tolerance are not the whole picture — cross-camber (side-to-side difference) drives pull behavior. The pull is real and caused by camber imbalance, not road crown.

26. B — The steering wheel must be physically centered and held in place with a steering wheel holder (a bar that braces against the seat or floor) before front toe is set. Without this, the wheel position at the time of toe adjustment becomes the "baked-in" straight-ahead position, which may be off-center from actual centered.

27. D — Side-to-side included angle mismatch of 1.5° is the signature of a bent steering knuckle. Since camber is equal on both sides but SAI differs (included angle = SAI + camber), the knuckle casting itself is bent. The right knuckle must be replaced before any valid alignment can be performed.

28. A — Torsion beam rear suspensions typically have no rear toe adjustment. An out-of-spec reading on one side means the beam is bent or the trailing arm is damaged — requiring component replacement. Adjusting front to compensate creates new problems; rotation masks symptoms; accepting the condition allows continued tire wear.

29. C — When the steering wheel sits off-center after alignment, splitting the front toe adjustment unequally between left and right tie rods recenters the wheel while maintaining correct total toe. This is standard procedure — not a workaround. Reindexing the wheel on its splines is only for misinstalled wheels, not alignment correction.

30. B — Wheel runout compensation is the required first step before any alignment measurement. The wheel device is clamped at some offset from the wheel's rotation axis, and compensation corrects for that clamping error. Skipping compensation produces measurements offset by 0.1–0.3° per wheel, rendering the alignment invalid.

31. C — Positive caster creates self-centering torque (the contact patch trails the steering axis). More positive caster = heavier steering effort and stronger self-centering. The trade-off is higher steering effort at parking speeds in exchange for better stability at speed. Caster does not cause tire edge wear — that's camber.

32. B — Significant setback (fore-aft wheel offset on the same axle) is almost always caused by collision damage that shifted a subframe or bent a control arm. Equipment error, tire size, and ride height do not produce the fore-aft wheel displacement that defines setback. Investigation for accident damage is the next step.

33. A — Thrust angle is the angular difference between the rear axle's thrust line (the direction the rear is actually tracking) and the vehicle's geometric centerline. A non-zero thrust angle causes the vehicle to crab. The definition specifically refers to rear axle direction vs. centerline, not setback, camber differences, or axle-specific toe.

34. D — After any SAS replacement, the manufacturer-specified calibration procedure must be performed via scan tool (or through a dynamic learn drive, depending on the vehicle). The sensor doesn't self-calibrate; highway drives and battery disconnects don't substitute for the procedure. This is a mandatory post-installation step.

35. B — Total rear toe of 0° with asymmetric readings (+0.10° and -0.10°) means one wheel toes in and the other toes out. This produces a non-zero thrust angle even though the total is zero. The vehicle will crab, and the steering wheel will sit off-center during straight driving. Total toe is not the only measurement that matters.

36. A — Seat-of-the-pants vibration at 60 mph with front wheels balanced points to the rear assembly. Rear wheels and tires can have runout or road-force variation even when standard balance is acceptable. Runout cannot be corrected by balancing alone — road-force measurement or match-mounting is the next diagnostic.

37. B — Tire pressure drops approximately 1 psi per 10°F decrease in ambient temperature, which commonly triggers TPMS warnings on cold mornings. Once the vehicle warms up during driving, pressure rises and the warning clears. This is a normal temperature-pressure relationship, not sensor or module failure.

38. B — Torque-to-yield axle nuts require torque to their final specification — often 200+ ft-lb — before the hub bearing is properly preloaded. Slight play immediately after installation usually means the final torque has not been applied. Races, rotors, and under-torquing the nut are all real concerns only after final torque is confirmed.

39. C — Smooth inside-edge wear without feathering is the signature of excessive negative camber. The tire's inner edge carries more load than the outer edge but doesn't scrub — so wear is flat, not feathered. Toe (any direction) produces feathered sawtooth wear; shocks produce cupping; under-inflation wears both shoulders. Smooth inside-edge = camber.

40. A — The industry-standard repairable tread puncture limit is 1/4 inch (6mm) in diameter. A 3/8-inch puncture exceeds this limit regardless of location or remaining tread depth. The tire must be replaced — internal and external repairs both fail at sizes above the spec because the tire's integrity cannot be restored.