

Automotive Technology 7th Edition
Chapter 12: Scientific Principles and Materials
Short Answer Quiz

Name:

Date:

1. Explain the concept of the "five whys" as it relates to automotive diagnosis.
2. What is the relationship between speed and kinetic energy in a moving vehicle? Provide a mathematical explanation.
3. Describe the differences between a first-class lever, a second-class lever, and a third-class lever in terms of the placement of the weight, fulcrum, and force. Include their functional advantages and disadvantages.
4. Using Newton's three laws of motion, explain why a heavy sport utility vehicle (SUV) would require more force to accelerate compared to a small economy vehicle.
5. How does a dynamometer work in measuring the horsepower of an engine, and how does torque relate to this measurement?

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6. Explain the difference between heat and temperature using the provided examples of a match and a large fire.

7. What is the meaning of the term pH and how does it relate to the neutralization process described in the text?

8. Briefly describe Boyle's Law and Charles's Law, stating who they were named after and what relationship they describe.

9. What are the two main properties of sound as described in the text? Provide a brief definition for each and provide one example as mentioned in the material.

10. Using the SAE Steel Designation system, explain what the analysis of the designation SAE 4340 represents in terms of alloy content and carbon points.