

Chapter 5 Guided Reading Section 5.1

1. A scalar quantity is completely described by its _____ and _____ units.
2. Define magnitude.
3. A vector includes both _____ and _____.
4. Give three examples of vector quantities.
5. Every force vector can be replaced by two perpendicular vectors called _____.
6. What is meant by polar coordinates?
7. What is meant by Cartesian coordinates?
8. What mathematical theorem is used to check vector components?
9. What do you call a diagram showing all of the forces acting on an object?

Guided Reading Section 5.2

10. What does it mean for an object to be in equilibrium?
11. According to Newton's First Law, what happens when the net force on an object is zero?
12. Define a contact force.
13. What is the normal force?
14. The total of all added vectors is called the _____.
15. What is the purpose of a spring?
16. According to Hooke's Law, the force exerted by a spring is proportional to its _____.
17. What is the spring constant?
18. State Hooke's Law as an equation.
19. Why does the equation for Hooke's Law contain a negative sign?

Guided Reading Section 5.3

- 41. Define friction.
- 42. Define sliding friction.
- 43. Define static friction.
- 44. Why is it harder to start pushing a heavy box than to keep it moving?
- 45. How is friction represented on a free-body diagram?
- 46. The greater the force squeezing two surfaces together, the _____ the friction force.
- 47. What is a lubricant?
- 48. Give two examples of lubricants reducing friction.

Guided Reading Section 5.4

- 54. Define torque.
- 55. What is an axis of rotation?
- 56. Torque is produced whenever the line of action of a force does **not** pass through the _____.
- 57. What is a lever arm?
- 58. Write the equation used to calculate torque.
- 59. What are the SI units of torque?
- 60. What direction is considered positive torque?
- 61. What direction is considered negative torque?
- 62. An object is in _____ when the net torque applied to it is zero.