

Chapter 5 Guided Reading Section 5.1

1. A scalar quantity is completely described by its single value called its _____.
2. Define magnitude.
3. A vector includes both _____ and _____.
4. Three ways to describe force vectors include: _____, _____, _____, or an _____.
5. Every force vector can be replaced by 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? Then write out the theorem equation.
9. What do you call a diagram showing all of the forces acting on an object?
10. The _____ is the total of all forces acting on an object.

Guided Reading Section 5.2

11. When the net force on an object is zero, the object is in _____.
12. According to Newton's First Law, what happens when the net force on an object is zero?

13. Define a contact force.
14. What is the normal force?
15. The total of all added vectors is called the _____.
16. What is the purpose of a spring?
17. According to Hooke's Law, the force exerted by a spring is proportional to its _____ in _____.
18. The relationship between the force exerted by a spring and its change in length is called the _____.
19. State Hooke's Law as an equation.
20. Why does the equation for Hooke's Law contain a negative sign?

Guided Reading Section 5.3

21. _____ is a force that results from relative motion between objects.
22. Define sliding friction.
23. _____ exists when forces are acting to cause an object to move but friction is keeping the object from moving
24. How is friction represented on a free-body diagram?
25. Why is it harder to start pushing a heavy box than to keep it moving?
26. The greater the force squeezing two surfaces together, the _____ the friction force.
27. A fluid used to reduce friction is called a _____.

Guided Reading Section 5.4

28. _____ is a measure of how much a force acting on an object causes the object to rotate.
29. What is an axis of rotation?
30. The _____ of _____ is an imaginary line in the direction of the force and passing through the point where the force is applied.
31. The torque created by a force depends on the strength of the force and also on the _____.
32. Write the equation used to calculate torque.
33. What are the SI units of torque?
34. What direction is considered positive torque?
35. What direction is considered negative torque?
36. An object is in _____ when the net torque applied to it is zero.