1. The number of significant figures in the number 0.00593 is
   a. 5  b. 2  c. 3  d. 6

2. The product of 10^{-4} and 10^5 is
   a. 1  b. 10  c. 0.1  d. 100

3. The length of a car is given as 4.57 m. The percent uncertainty in this measurement is
   a. 2%  b. 20%  c. 1%  d. 10%

4. The volume of a ball in m^3 with radius of 1.15 cm is
   a. 6.4 \times 10^{-6}  b. 6.4 \times 10^{-5}  c. 6.4  d. 65

5. A woman's height is 5 ft. 6 in. In SI units her height is
   a. 1.5 m  b. 1.6 m  c. 1.7 m  d. 2.5 m

6. Assuming the Earth is a sphere of radius 6.4 \times 10^3 km and has mass 6.0 \times 10^{24} kg, its density in SI units is
   a. 5.5 \times 10^{12}  b. 5.5 \times 10^3  c. 1.2 \times 10^{16}  d. 3.5 \times 10^8

7. A reasonable estimate for the number of gallons of paint required to cover the exterior of a typical two-story clapboard house is (assuming that each gallon covers 400 square feet)
   a. 1  b. 5  c. 15  d. 25

8. The human lung is full of tiny cavities called alveoli. The lungs of an adult contain about 300 million alveoli. A reasonable estimate for the diameter of a typical alveolus is
   a. 0.1 cm  b. 0.01 cm  c. 0.001 cm  d. 0.0001 cm

9. Newton's Law of Universal Gravitation states that the force between two masses m_1 and m_2, separated by a distance r is given by F = Gm_1m_2/r^2. Force has dimensions kg m/s^2. The units of the gravitational constant G are
   a. none, G is dimensionless  b. m^3/(kg s^2)
   c. kg m/s^2  d. m^2/kg^2

10. The Yukawa potential for nuclear forces has the form e^{-ar}/r for two nucleons separated by a distance r. The dimensions of the parameter a are:
    a. m  b. m^{-1}
    c. dimensionless  d. need more information

11. The plot of x vs. t for an object's motion is a parabola. The acceleration of the object is
    a. zero  b. constant  c. variable

12. An object moves along the negative x direction with decreasing speed. The sign of its acceleration is:
    a. positive  b. negative
13. A plot of an object's velocity $v$ as a function of time is a straight line with positive slope which crosses the $t$ axis at some time. Which of the following statements is NOT true?
   a. the acceleration is constant
   b. the object changes direction of motion
   c. the object is instantaneously at rest at some instant
   d. the object never changes direction of motion

14. An object moves with initial velocity equal to 10 m/s. How long must it accelerate at a constant acceleration of 2 m/s$^2$ before its average velocity is equal to three times its initial velocity?
   a. 20 s  b. 25 s  c. 15 s  d. 10 s

15. Photographs are taken of a falling object at equal time intervals. The distance between the neighboring positions of the object will be
   a. the same  b. bigger with time  c. smaller with time

16. The acceleration of a ball thrown upward (after it leaves the person's hand) is
   a. greater than  b. less than  c. the same as the acceleration of a ball thrown downward.

17. Two objects are thrown off a cliff. One is thrown directly up, the other directly down. The ball thrown upward hits the ground
   a. at the same speed as the one thrown downward
   b. faster than the one thrown downward
   c. slower than the one thrown downward

18. An object released from rest at the edge of a cliff off the ground falls the first third of the distance to the ground in 3 s. How long will it take to fall the remaining distance?
   a. 5.2 s  b. 2.2 s  c. 3 s  d. 1.1 s

19. A ball is thrown upward with an initial velocity of 10 m/s. How long will it take to reach its maximum height?
   a. 1.02 s  b. 0.51 s  c. 1.42 s  d. 2.84 s

20. A ball is thrown straight up. It reaches a maximum height and then descends. As it descends
   a. its velocity and acceleration both point down.
   b. its velocity and acceleration point in opposite directions.
   c. its velocity and acceleration both point up.

21. When a falling object experiences air resistance and reaches a terminal velocity its acceleration is
   a. -9.8 m/s$^2$  b. upward in direction
   c. downward but less than 9.8 m/s$^2$  d. zero

22. A penny and feather are dropped simultaneously in an air-filled tube. The net acceleration of the penny is
   a. greater than that of the feather  b. less than that of the feather
   c. the same as that of the feather
A truck moving at constant velocity 15 m/s passes a stationary car. At that instant the car begins to move with constant acceleration of 5 m/s².

23. Which of the following statements is true?
   a. plots of x vs. t for each of the two vehicles will cross when the car overtakes the truck
   b. plots of v vs. t for each of the two vehicles will cross when the car overtakes the truck
   c. more information is needed.

24. Vector A has an x component of 3 and a y component of 4. The angle A makes with the x axis is
   a. 53.1° b. 36.9° c. 45° d. 23.1°

25. Given two vectors of magnitudes 2 and 4 (but unspecified direction), if we add them together the maximum magnitude of the resultant vector is
   a. 6 b. 2 c. 4.24 d. 8

26. Given two vectors of magnitudes 2 and 4 (but unspecified direction), if we add them together the minimum magnitude of the resultant vector is
   a. zero b. 2 c. 4 d. 1

27. Two vectors are given by \( A_x = 5, A_y = 7 \) and \( B_x = 3, B_y = 2 \). The magnitude of the vector \( A - B \) is
   a. 12.1 b. 5.4 c. 5.0 d. 7.2

28. Three vectors are given by: \( A_x = 3, A_y = 4, B_x = 5, B_y = 12, C_x = 1, C_y = 2 \). The magnitude of the vector \( A - B - C \) is
   a. 13.1 b. 10.4 c. -9.5 d. 3.0

29. You walk 100 m due south and then turn and walk 50 m in a direction 45° north of east. Your total displacement is
   a. 150 m b. 135.4 m c. 73.7 m d. 64.6 m

30. Vector A has magnitude 3.6 and makes an angle of 70° with the x axis. Vector B has magnitude 2.4 and makes an angle of 30° with the negative x axis. The magnitude of \( A + B \) is
   a. 2.3 b. 3.4 c. 5.5 d. 6.3

31. The magnitude of the difference between the two unit vectors \( \hat{i} \) and \( \hat{j} \) is
   a. 2 b. 0 c. 1.4 d. 0.7

32. An object moves with its position obeying \( x = 5t^3 - 6t^2 \) and \( y = 3t^{-1} + 4t^4 \). The magnitude of its acceleration at \( t = 1s \) is
   a. 57 m/s² b. 34 m/s² c. 26 m/s² d. 44 m/s²

33. The position of a car is given by \( x = 5t + 3, y = 6t^2 - 7t \). The magnitude of the car's average velocity between \( t = 1s \) and \( t = 3s \) is
   a. 14.1 b. 12.3 c. 13.0 d. 11.0

34. A projectile is launched with speed \( v_0 \). How many values of the launch angle \( \theta \) yield the same value for the range of the projectile (assuming the range is not maximized)?
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a. one  b. two  c. three  d. four
35. A projectile is launched at an angle of 30° with the horizontal and a speed of 30 m/s. How much time does it spend in the air?
   a. 2.7 s  b. 1.5 s  c. 3.1 s  d. 1.8 s

36. A package is dropped from a plane flying at constant velocity parallel to the ground. The package will
   a. fall behind the plane
   b. remain directly below the plane until hitting the ground
   c. move ahead of the plane
   d. it depends on the speed of the plane

37. A batter hits a fly ball which leaves the bat at an angle of 60 degrees with an initial speed of 30 m/s (approximately 60 mi/h) heading towards centerfield. Neglecting air resistance determine how far from home plate the ball would land.
   a. 80 m  b. 160 m  c. 90 m  d. 100 m

38. A snowball rolls off a roof that has a slope of 30° with a speed of 5 m/s. The edge of the roof is 10 m above the ground. How far from the house does the snowball strike the ground?
   a. 4.5 m  b. 6.1 m  c. 5.1 m  d. 3.7 m

39. If you double the period of an object in uniform circular motion, the centripetal acceleration
   a. doubles  b. halves  c. quadruples  d. is 1/4 as big

40. An astronaut in training is placed in a merry-go-round like device that rotates her at high speed in a circle of radius 5 m. The frequency of her rotation at which her centripetal acceleration is 10g is
   a. 1.4 rev/s  b. 0.7 rev/s  c. 0.35 rev/s  d. 2.1 rev/s

41. An airplane is flying at an airspeed of 600 km/h. A wind is blowing southeast with speed 50 km/h. To fly due north the pilot should aim the plane in the direction
   a. 87° north of west  b. 87° north of east
   c. 3° north of east  d. 3° north of west

Three vectors are given by: \( A_x = 3 \), \( A_y = 4 \), \( B_x = 5 \), \( B_y = 12 \), \( C_x = 1 \), \( C_y = 2 \).

42. In the above problem the vector \( A-B-C \) points in the
   a. first quadrant  b. second quadrant
   c. third quadrant  d. fourth quadrant

You walk 100 m due south and then turn and walk 50 m in a direction 45° north of east.

43. What angle does your displacement vector in the above problem make with the x axis?
   a. 61.3°  b. -61.3°  c. -26.6°  d. -45°
An airplane is flying at an airspeed of 600 km/h. A wind is blowing southeast with speed 50 km/h.

44. In the above problem, how long will it take the plane to fly 100 km?
   a. about one hour   b. about 15 minutes
   c. about 10 minutes   d. about 5 minutes

45. In the above problem the centerfielder, starting at a distance of 100 m from the plate, runs in at a constant speed and catches the ball as he runs. How fast does he run?
   a. 5 m/s   b. 30 m/s   c. 3.8 m/s   d. 18.9 m/s

46. In the above problem suppose that instead of timing his run to catch the ball just in time, the centerfielder runs as fast as possible to reach the point where he judges the ball will land. Estimate how long he will wait at that spot for the ball.
   a. 3 s   b. 30 s   c. 60 s   d. 10 s

47. A block sits on a frictionless surface. A horizontal force of 10 N applied to the block moves it 30 m in 15 s. The mass of the block is
   a. 26 kg   b. 38 kg   c. 44 kg   d. 100 kg

48. You pull a box with a constant force across a frictionless table using an attached rope held horizontally. If you now pull the rope at an angle with the horizontal (with the box remaining flat on the table) does the acceleration of the box
   a. remain the same   b. increase   c. decrease

49. Consider a box resting on a frictionless surface. A constant force acts on the box for a given amount of time accelerating it to some final speed. Then this process is repeated with another box which has twice the mass of the first one. The final speed of the heavier box is
   a. twice the speed of the lighter box.
   b. the same as that of the lighter box.
   c. half the speed of the lighter box.
   d. four times the speed of the lighter box.

50. An elevator has a frayed cable which will break if the tension exceeds a certain value. Is the tension more likely to exceed this value if the elevator is
   a. moving at constant velocity   b. accelerating upward
   c. accelerating downward   d. the motion is irrelevant

51. Which of the following statements is true for a pair of forces obeying Newton's Third Law?
   a. they are parallel to each other
   b. they are perpendicular to each other
   c. they act on the same object
   d. they act on different objects
52. You are in a car with a pendulum hanging inside from the roof. You notice when the car accelerates that the pendulum swings forward. The force equal and opposite to the one that pushed the pendulum forward is
   a. the tension in the pendulum's string
   b. the gravitational force of the pendulum on the car
   c. the force of the pendulum on the air surrounding it
   d. Newton's Third Law is not relevant here

53. A 5 kg block slides down a frictionless plane inclined at 30° with the horizontal. The acceleration of the block is
   a. 4.9 m/s²  b. 9.8 m/s²  c. 8.5 m/s²
   d. need to know the mass of the block

54. A person weighing 490 N stands on a scale in an elevator. The elevator is moving upward with a deceleration of 2 m/s². The reading on the scale is
   a. 390 N  b. 490 N  c. 590 N  d. zero

55. Two blocks of the same size but different masses, m₁ and m₂, are placed on a table side-by-side in contact with each other. Assume that m₁ > m₂. Let N₁ be the normal force between the two blocks when you push horizontally on the free side of m₁ (towards m₂). Let N₂ be the normal force between the two blocks when you push horizontally on the free side of m₂ (towards m₁). Which of the following statements is true?
   a. N₁ = N₂  b. N₁ > N₂  c. N₁ < N₂

56. A block is placed at the top of a frictionless inclined plane with angle 30° and released. The incline has a height of 15 m and the block has mass 2 kg. How long will it take the block to reach the bottom of the incline?
   a. 1.7 s  b. 2.5 s  c. 2.7 s  d. 3.5 s

57. A 5 kg block is placed on an inclined plane of angle 30° and pushed up the plane with a horizontal force of magnitude 30 N. The magnitude of the block's acceleration is
   a. 0.2 m/s²  b. 0.3 m/s²  c. 0.4 m/s²  d. 0.5 m/s²

58. In the above problem the speed of the block when it reaches the bottom of the incline is
   a. 8.3 m/s  b. 17 m/s  c. 25 m/s  d. 30 m/s

59. In the above problem, suppose a second block of mass 4 kg (twice the mass of the first block) is placed alongside the first block at the top of the incline and both are released from rest. The speed of the second block when it reaches the bottom of the incline is
   a. 8.5 m/s  b. 17 m/s  c. 34 m/s  d. 43 m/s
Two blocks of the same size but different masses, \( m_1 \) and \( m_2 \), are placed on a table side-by-side in contact with each other. Assume that \( m_1 > m_2 \). Let \( N_1 \) be the normal force between the two blocks when you push horizontally on the free side of \( m_1 \) (towards \( m_2 \)). Let \( N_2 \) be the normal force between the two blocks when you push horizontally on the free side of \( m_2 \) (towards \( m_1 \)).

60. In the above problem when you push on the free side of \( m_1 \), how are the accelerations \( a_1 \) and \( a_2 \) of the blocks related to each other?
   a. \( a_1 = \frac{(m_1/m_2)}{a_2} \)  
   b. \( a_1 = \frac{(m_2/m_1)}{a_2} \)  
   c. \( a_1 = \frac{m_1m_2a_2}{(m_1 + m_2)} \)  
   d. \( a_1 = a_2 \)

A 5 kg block slides down a frictionless plane inclined at 30° with the horizontal.

61. In the above problem the magnitude of the normal force of the plane on the block is
   a. 0 N  
   b. 25 N  
   c. 42 N  
   d. 49 N

A 5 kg block is placed on an inclined plane of angle 30° and pushed up the plane with a horizontal force of magnitude 30 N.

62. In the above problem what is the magnitude of the force exerted by the block on the plane?
   a. 27 N  
   b. 42 N  
   c. 50 N  
   d. 57 N

63. In the above problem what is the smallest horizontal force that needs to be applied to make the block move up the plane?
   a. 10 N  
   b. 28. N  
   c. 42. N  
   d. 57. N

A person weighing 490 N stands on a scale in an elevator. The elevator is moving upward with a deceleration of 2 m/s².

64. In the above problem suppose that the elevator is now moving downward with an acceleration of 2 m/s². The reading on the scale is now
   a. 390 N  
   b. 490 N  
   c. 590 N  
   d. zero

65. A block of mass 5 kg lies on a table. It is not moving and you are not pulling or pushing on it. The coefficients of static and kinetic friction are 0.4 and 0.3 respectively. The force of friction on this object is
   a. 0 N  
   b. 15 N  
   c. 20 N  
   d. 49 N

66. A small block is held in place against a rough wall by someone pushing on it with a force directed at 30° above the horizontal. The coefficients of static and kinetic friction between the box and wall are 0.4 and 0.3 respectively. The box slides down unless the applied force has magnitude 10 N. The mass of the box is
   a. 0.2 kg  
   b. 0.4 kg  
   c. 0.7 kg  
   d. 0.9 kg

67. A heavy box of mass 50 kg sits at rest on a floor. The coefficients of static and kinetic friction between the box and the floor are 0.4 and 0.35 respectively. A force of 150 N is applied horizontally to the box. The box will
   a. move at constant velocity  
   b. accelerate  
   c. remain at rest forever  
   d. remain at rest for 2 s and then accelerate
68. You first apply a horizontal force to drag a box across a floor. If instead you apply a force of the same magnitude but an angle above the horizontal, does the force of kinetic friction
a. become greater  b. become smaller  c. remain the same

69. An object slides down an inclined plane at constant velocity. >From this we conclude
a. the incline is frictionless
b. the net force on the object is directed down the plane
c. there is a frictional force
d. there is no normal force on the object

70. A box slides down an inclined plane making an angle of 30° with the horizontal. The block moves at constant speed of 5 m/s. The coefficient of kinetic friction between the block and the incline is
a. 0.2  b. 0.4  c. 0.5  d. 0.6

71. Block A sits atop block B which rests on a table. A force F is applied to block B and both blocks move with A continuing to sit stationary relative to B. The force that acts on A causing it to move is
a. the force of kinetic friction  b. the force of static friction
c. the applied force F  d. inertia

72. A block is placed on a plane inclined at angle θ and remains stationary. From this observation we can conclude that
a. \(\mu_k > \tan \theta\)  b. \(\mu_k < \tan \theta\)  c. \(\mu_s < \tan \theta\)  d. \(\mu_s > \tan \theta\)

73. A block is released at the top of a plane inclined at 60° with the horizontal. The block travels 1 m in 2 s. What is the coefficient of kinetic friction between the block and the plane?
a. 0.3  b. 0.4  c. 0.5  d. 0.7

74. A block of mass 1 kg rests on a tabletop with coefficient of kinetic friction equal to 0.3. The block is connected by a string which passes over a frictionless pulley to a second block of mass 2 kg which hangs vertically from the string. The acceleration of the two blocks is
a. 3.3 m/s²  b. 5.6 m/s²  c. 7.8 m/s²  d. 9.8 m/s²

75. A box of mass 75 kg is pulled across a floor with a force inclined at an angle θ with respect to the horizontal. The coefficient of kinetic friction between the box and the floor is 0.3. The angle which will maximize the acceleration of the box is
a. 73° above the horizontal  b. 73° below the horizontal
c. 17° below the horizontal  d. 17° above the horizontal

76. A block is placed on an incline angled at 30° with the horizontal. The coefficient of static friction is 0.4 between the block and incline. If the block is placed at rest on the incline it will
a. remain at rest  b. accelerate down the incline
c. move at constant velocity down the incline  d. need more information
77. A box of mass 50 kg sits on the bed of a pickup truck, 2 m behind the cab. The truck by itself has mass 2500 kg and is traveling at 25 m/s. The box is not secured to the bed; the coefficient of static friction between the box and the truck bed is 0.4, and the coefficient of kinetic friction is 0.3. The truck decelerates at a constant rate and stops over a distance of 60 m. How soon after the truck begins to decelerate will the box strike the cab? 
   a. 0.95 s    b. 1.3 s    c. 4.8 s    d. 5.3 s

78. A box of mass 12 kg moves up a plane inclined at angle 30° with the horizontal. The box is connected to a second box of mass 15 kg via a string which passes over a frictionless pulley at the top of the incline. The second mass hangs vertically from the string and moves down with acceleration 1.5 m/s². The coefficient of kinetic friction between the first mass and the incline is 
   a. 0.35    b. 0.47    c. 0.52    d. 0.61

79. A box sits on the surface of a table. A horizontal force is applied to the box, but it does not move until the magnitude is increased to a threshold value. If a downward vertical force is applied in addition to the horizontal one, does the threshold value of the horizontal force 
   a. increase    b. decrease    c. remain the same

80. A 10 kg box is held against a rough ceiling and pushed across the ceiling with a force of magnitude 50 N directed 60° above the horizontal. The coefficient of kinetic friction between the box and the ceiling is 0.3. The acceleration of the block is 
   a. 1.5 m/s²    b. 2.2 m/s²    c. 3.7 m/s²    d. 4.1 m/s²

81. A small block of mass 2 kg is held against the side of a larger block of mass 10 kg which sits on a frictionless floor. The small block does not touch the floor and does not slip down as the blocks move across the floor. The coefficient of static friction between the two blocks is 0.4. The smallest acceleration the two blocks can have is 
   a. 2.5 m/s²    b. 4.9 m/s²    c. 5.4 m/s²    d. 9.8 m/s²

82. A block of mass 1 kg sits atop a block of mass 2 kg, which in turn sits on the surface of a table. The coefficient of kinetic friction between the lower block and the table is 0.3, and the coefficient of static friction between the two blocks is 0.4. A horizontal force is applied to the lower block. The largest force that can be applied without the upper block slipping is 
   a. 9.8 N    b. 14.5 N    c. 19.8 N    d. 20.6 N

83. A stunt car goes around a loop-the-loop, hanging upside down at the top. The car doesn't fall because 
   a. there's a downward force on the car    b. there's an upward force on the car    c. there's a sideways force on the car

84. Consider a train that rounds an unbanked curve with a radius of 600 m at a speed of 160 km/h. The sideways force on a train passenger of mass 70 kg is 
   a. 230 N    b. 450 N    c. 690 N    d. 710 N

85. A bucket of mass 2 kg is whirled in a vertical circle of radius 1 m. At the lowest point of its motion the tension in the rope supporting the bucket is 25 N. The speed of the bucket is 
   a. 1.6 m/s    b. 2.7 m/s    c. 4.7 m/s    d. 5.6 m/s
86. A pendulum consisting of a string of length 0.5 m with a mass of 0.5 kg attached at the bottom swings back and forth. The tangential component of the acceleration when the pendulum makes an angle of $45^\circ$ with the vertical is
a. $2.1 \text{ m/s}^2$ b. $3.4 \text{ m/s}^2$ c. $5.4 \text{ m/s}^2$ d. $6.9 \text{ m/s}^2$

87. The time it takes a falling object to attain its terminal velocity
a. increases with increasing mass
b. decreases with increasing mass
c. is independent of mass

A block of mass 1 kg sits atop a block of mass 2 kg, which in turn sits on the surface of a table. The coefficient of kinetic friction between the lower block and the table is 0.3, and the coefficient of static friction between the two blocks is 0.4. A horizontal force is applied to the lower block.

88. In the above problem the acceleration of the blocks when the maximum force is applied is
a. $2.9 \text{ m/s}^2$ b. $3.9 \text{ m/s}^2$ c. $4.9 \text{ m/s}^2$ d. $7.5 \text{ m/s}^2$

A box of mass 12 kg moves up a plane inclined at angle $30^\circ$ with the horizontal. The box is connected to a second box of mass 15 kg via a string which passes over a frictionless pulley at the top of the incline. The second mass hangs vertically from the string and moves down with acceleration 1.5 m/s$^2$.

89. In the above problem the value of the tension in the string is
a. 23 N b. 65 N c. 125 N d. 147 N

A bucket of mass 2 kg is whirled in a vertical circle of radius 1 m. At the lowest point of its motion the tension in the rope supporting the bucket is 25 N.

90. In the above problem how fast must the bucket be moving at the top of the circle so that the rope does not go slack?
 a. 2 m/s b. 2.5 m/s c. 3.1 m/s d. 4.7 m/s

A block is released at the top of a plane inclined at $60^\circ$ with the horizontal. The block travels 1 m in 2 s.

91. In the above problem the speed of the block after it has traveled 1 m is
a. $5.1 \text{ m/s}$ b. $6.3 \text{ m/s}$ c. $9.2 \text{ m/s}$ d. $10.1 \text{ m/s}$

Consider a train that rounds an unbanked curve with a radius of 600 m at a speed of 160 km/h.

92. In the above problem if the train tilts 8 degrees towards the center of the curve, the sideways force on a passenger is
a. 140 N b. 230 N c. 690 N d. 710 N
A box of mass 50 kg sits on the bed of a pickup truck, 2 m behind the cab. The truck by itself has mass 2500 kg and is traveling at 25 m/s. The box is not secured to the bed; the coefficient of static friction between the box and the truck bed is 0.4, and the coefficient of kinetic friction is 0.3. The truck decelerates at a constant rate and stops over a distance of 60 m.

93. In the above problem how large would the coefficient of static friction have to be so that the box does not move relative to the truck?
   a. 0.45  b. 0.5  c. 0.53  d. 0.6

A block of mass 1 kg rests on a tabletop with coefficient of kinetic friction equal to 0.3. The block is connected by a string which passes over a frictionless pulley to a second block of mass 2 kg which hangs vertically from the string.

94. In the above problem suppose that a downward force of 5 N is applied to the 1 kg mass. The acceleration of the two blocks is
   a. 5.1 m/s²  b. 5.6 m/s²  c. 7.3 m/s²  d. 9.1 m/s²

A block of mass 5 kg lies on a table. It is not moving and you are not pulling or pushing on it. The coefficients of static and kinetic friction are 0.4 and 0.3 respectively.

95. In the above problem a horizontal force of 17 N is now applied to the block. Will it move?
   a. yes  b. no

96. In the above problem suppose you turn the box on its side so that there's a smaller surface area in contact with the table. The reading on the spring scale just as the box starts to move as compared with the previous problem is
   a. greater  b. smaller  c. the same

97. Do the numbers 0.00324 and 0.00056 have the same number of significant figures?

98. The plot of x vs. t for an object's motion is parabolic. Is the object ever instantaneously at rest?

99. Car A is traveling at 50 mi/hr approaching car B which is traveling at 45 mi/hr. What is the maximum speed car A can have just as it reaches car B so that there is no collision?

100. The average velocity of an object will equal its instantaneous velocity only when the velocity is increasing at a constant rate. True or false?
    a. True  b. False

A ball is thrown downward from a cliff with a speed of 30 m/s.

101. For the problem above if the ball were thrown upward instead of downward its speed after 3 s would be greater than the answer to the previous problem. True or false?
    a. True  b. False
1. c
2. b
3. a
4. a
5. c
6. b
7. b
8. b
9. b
10. b
11. b
12. a
13. d
14. a
15. b
16. c
17. a
18. b
19. a
20. a
21. d
22. a
23. a
24. a
25. a
26. b
27. b
28. b
29. c
30. a
31. c
32. a
33. c
34. b
35. b
36. b
37. a
38. c
39. d
40. b
41. a
42. d
43. b
44. c
45. c
46. a
47. b
48. c
49. c
50. b
51. d
52. d
53. a
54. a
55. c
56. d
57. b
58. b
59. b
60. d
61. c
62. d
63. b
64. c
65. a
66. d
67. c
68. b
69. c
70. d
71. b
72. d
73. d
74. b
75. d
76. b
77. b
78. b
79. a
80. d
81. b
82. d
83. a
84. a
85. b
86. d
87. a
88. a
89. c
90. c
91. d
92. a
93. c
94. a
95. b
96. c
97. no
98. yes
99. 45 mi/hr
100. False
101. False