A Review Activity

2. A skier starting from rest skis straight down a slope 50. meters long in 5.0 seconds. What is the magnitude of the acceleration of the skier?

a)5.0 m/s2   b)9.8 m/s2   c)20. m/s2   d)4.0 m/s2

3. A car travels 90. meters due north in 15 seconds. Then the car turns around and travels 40. meters due south in 5.0 seconds. What is the magnitude of the average velocity of the car during this 20.-second interval?

a)5.0 m/s   b)7.0 m/s   c)6.5 m/s   d)2.5 m/s

4. One car travels 40. meters due east in 5.0 seconds, and a second car travels 64 meters due west in 8.0 seconds. During their periods of travel, the cars definitely had the same

a)average velocity   b)average speed   c)change in momentum d)total displacement

5. A skater increases her speed uniformly from 2.0 meters per second to 7.0 meters per second over a distance of 12 meters. The magnitude of her acceleration as she travels this 12 meters is

a)3.8 m/s2   b)1.9 m/s2   c)2.2 m/s2   d)2.4 m/s2

7. The speed of a wagon increases from 2.5 m/s to 9.0 m/s in 3.0 seconds as it accelerates uniformly down a hill. What is the magnitude of the acceleration of the wagon during this 3.0-second interval?

a)3.8 m/s2   b)0.83 m/s2   c)2.2 m/s2   d)3.0 m/s2

8. A 1.0-kg ball is dropped from the roof of a building 40. meters tall. What is the approximate time of fall? [Neglect air resistance.]

a)2.0 s b)2.9 s c)8.2 s d)4.1 s

9. A car increases its speed from 9.6 m/s to 11.2 m/s in 4.0 seconds. The average acceleration of the car during this 4.0-second interval is

a)2.8 m/s2   b)2.4 m/s2   c)5.2 m/s2   d)0.40 m/s2

12. A student throwing a baseball horizontally at 25 meters per second from a cliff 45 meters above the level ground. Approximately how far from the base of the cliff does the ball hit the ground? [Neglect air resistance.]

a)75 m b)230 m   c)140 m   d)45 m

13. A projectile is fired from a gun near the surface of Earth. The initial velocity of the projectile has a vertical component of 98 meters per second and a horizontal component of 49 meters per second. How long will it take the projectile to reach the highest point in its path?

a)100. s b)5.0 s c)10. s d)20. s

15. Projectile A is launched horizontally at a speed of 20. meters per second from the top of a cliff and strikes a level surface below, 3.0 seconds later. Projectile B is launched horizontally from the same location at a speed of 30. meters per second. Approximately how high is the cliff?

a)60. m b)104 m   c)29 m d)44 m

16. A ball is thrown horizontally at a speed of 24 m/s from the top of a cliff. If the ball hits the ground 4.0 seconds later, approximately how high is the cliff?

a)6.0 m b)96 m c)39 m d)78 m

17. An 80-kg skier slides on waxed skis along a horizontal surface of snow at constant velocity while pushing with his poles. What is the horizontal component of the force pushing him forward?

a)0.4 N b)40 N c)0.05 N   d)4 N

18. A 25-newton horizontal force northward and a 35-newton horizontal force southward act concurrently on a 15-kg object on a frictionless surface. What is the magnitude of the object's acceleration?

a)0.67 m/s2   b)4.0 m/s2   c)1.7 m/s2   d)2.3 m/s2

19. Two forces are applied to a 2.0-kilogram block on a frictionless horizontal surface, as shown in the diagram below. The acceleration of the block is

a)5.0 m/s2 to the right   c)5.0 m/s2 to the left

b)3.0 m/s2 to the left   d) 3.0 m/s2 to the right

2. A series of unbalanced forces was applied to each of two blocks, A and B. The graphs below show the relationship between unbalanced force and acceleration for each block. Compared to the mass of block A, the mass of block B is

Unbalanced Force vs.
Acceleration for Block A

Unbalanced Force vs.
Acceleration for Block B
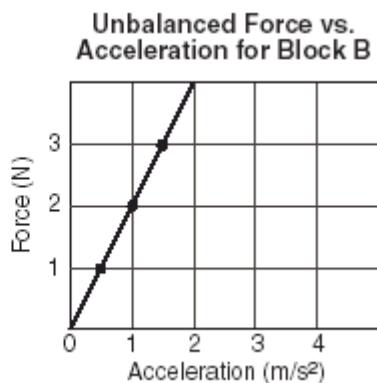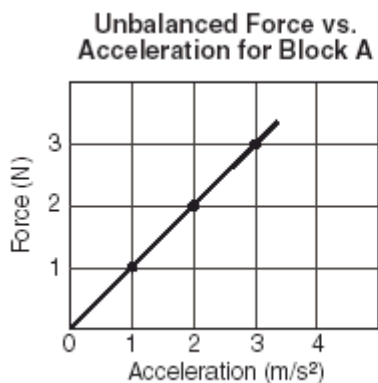
a)twice as great b)half as great   c)four times as great   d)the same

2. A skier starting from rest skis straight down a slope 50. meters long in 5.0 seconds. What is the magnitude of the acceleration of the skier?
        The answer is: **4.0 m/s²**

3. A car travels 90. meters due north in 15 seconds. Then the car turns around and travels 40. meters due south in 5.0 seconds. What is the magnitude of the average velocity of the car during this 20.-second interval?
        The answer is: **2.5 m/s**

4. One car travels 40. meters due east in 5.0 seconds, and a second car travels 64 meters due west in 8.0 seconds. During their periods of travel, the cars definitely had the same
        The answer is: **average speed**

5. A skater increases her speed uniformly from 2.0 meters per second to 7.0 meters per second over a distance of 12 meters. The magnitude of her acceleration as she travels this 12 meters is
        The answer is: **1.9 m/s²**

7. The speed of a wagon increases from 2.5 m/s to 9.0 m/s in 3.0 seconds as it accelerates uniformly down a hill. What is the magnitude of the acceleration of the wagon during this 3.0-second interval?
        The answer is: **2.2 m/s²**

8. A 1.0-kg ball is dropped from the roof of a building 40. meters tall. What is the approximate time of fall? [Neglect air resistance.]
        The answer is: **2.9 s**

9. A car increases its speed from 9.6 m/s to 11.2 m/s in 4.0 seconds. The average acceleration of the car during this 4.0-second interval is
        The answer is: **0.40 m/s²**

12. The diagram below shows a student throwing a baseball horizontally at 25 meters per second from a cliff 45 meters above the level ground. Approximately how far from the base of the cliff does the ball hit the ground? [Neglect air resistance.]
        The answer is: **75 m**

13. A projectile is fired from a gun near the surface of Earth. The initial velocity of the projectile has a vertical component of 98 meters per second and a horizontal component of 49 meters per second. How long will it take the projectile to reach the highest point in its path?
        The answer is: **10. S**

        15. Projectile A is launched horizontally at a speed of 20. meters per second from the top of a cliff and strikes a level surface below, 3.0 seconds later. Projectile B is launched horizontally from the same location at a speed of 30. meters per second. Approximately how high is the cliff?
        The answer is: **44 m**

        16. A ball is thrown horizontally at a speed of 24 m/s from the top of a cliff. If the ball hits the ground 4.0 seconds later, approximately how high is the cliff?
        The answer is: **78 m**

2. A series of unbalanced forces was applied to each of two blocks, A and B. The graphs below show the relationship between unbalanced force and acceleration for each block. Compared to the mass of block A, the mass of block B is
        The answer is: **twice as great**