Name _____ Period _____ Date _____

Free-Fall: Going-Up

Pre-Test - Post-Test

1. An object is thrown upwards and caught when it comes back down. Neglecting air resistance, the speed with which it is caught is
   a. more than the speed it had when thrown upwards.
   b. less than the speed it had when thrown upwards.
   c. the same as the speed it had when thrown upwards.

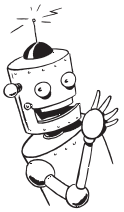
2. As an object rises in the air, its acceleration is
   a. less than 9.8 m/s^2
   b. 9.8 m/s^2
   c. more than 9.8 m/s^2
   d. changing

3. When a rock thrown upwards gets to the exact top of its path, its
   A) velocity is zero.
   B) velocity is greater than 10 m/s.
   C) velocity is less than 10 m/s.
   D) velocity is 10 m/s.
   E) none of these.

4. When a rock thrown upwards gets to the exact top of its path, its
   A) acceleration is zero.
   B) acceleration is 9.8 m/s^2.
   C) acceleration is greater than 10 m/s..
   D) acceleration is less than 10 m/s.
   E) none of these.

5. A ball is thrown upwards. Neglecting air resistance, what initial upward speed does the ball need to remain in the air for a total of 10 seconds?
   a. 50 m/s.
   b. 60 m/s.
   c. 80 m/s.
   d. 110 m/s.
   e. none of these.

6. A ball is thrown 125 meters upwards and then falls the same distance back to earth. Neglecting air resistance, its total time in the air is about
   a. 5 seconds.
   b. 10 seconds.
   c. 15 seconds.
   d. more than 20 seconds.
   e. none of these.



Name _____ Period _____ Date _____

Free Fall: Going Up

Free-Fall Review

1. At what rate do all object in free fall gain velocity?

2. On the left margin, a rock is dropped from rest and its position is noted after each second of fall. Label the velocity at each location.

1.11 Going Up

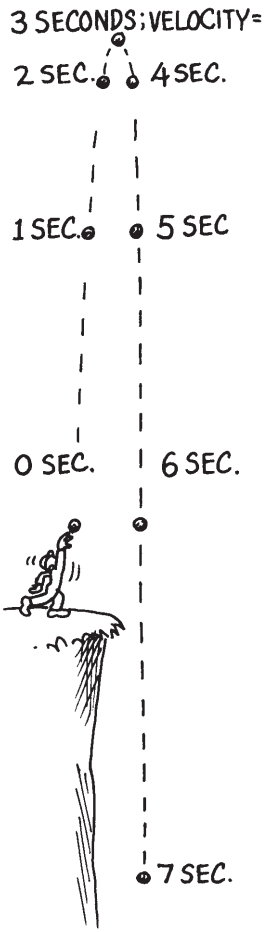
3. As an object is thrown away from the ground, at what rate does it's speed decreases?

4. In the image bellow, labeling the positive and negative directions.

5. What is the direction of an objects velocity as it moves away from the Earth (positive or negative)?

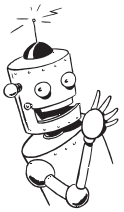
6. What is the direction of an objects velocity as it moves towards the Earth (positive or negative)?

7. A ball is thrown straight upwards at a speed of 30 m/s. On the image bellow, label the balls velocity every second of the objects motion.



8. A baseball is thrown straight upwards, by how much does the speed of the ball decrease each second while ascending?

9. In the absents of air resistance, by how much does it increase each second while descending?



10. If an object lands at the same elevation from which it was released from, how fast will the object hit the ground compared to the speed it was thrown upwards?

11. Why is it a bad idea to fire bullets into the air during a celebration?

12. *What is the velocity of an object when it reaches the top of its path?*

a. 0 m/s
b. 9.8 m/s
c. 9.8 m/s/s
d. less than 9.8 m/s/s
e. greater than 9.8 m/s/s

13. *What is the acceleration of an object when it reaches the top of its path?*

f. 0 m/s
g. 9.8 m/s
h. 9.8 m/s/s
i. less than 9.8 m/s/s
j. greater than 9.8 m/s/s

14. Compare the acceleration of an object thrown into the air as it goes up and then come back down.

15. When dropped from rest, how long does it take a falling object to reach a speed of 10 m/s?

16. If a rock is thrown straight upward at 10 m/s, how long does it take to reach a speed of 0 m/s?

17. If a rock is thrown straight upward at 10 m/s, how long will it be in the air?

18. If a rock is thrown straight upward at 10 m/s, How high will it travel?

Sample Problem

19. In the space bellow, draw a picture of a baseball thrown upward at 50 m/s.

20. How long will it take the baseball to reach the top of it's path?

21. How long will the baseball be in the air total?

22. What will be the velocity of the ball be when it comes back to the ground?

23. What will the location of the ball be from the ground after it has been in the air for 7 seconds?