

3 Falling Bodies

Worksheet A: Concepts

Name _____

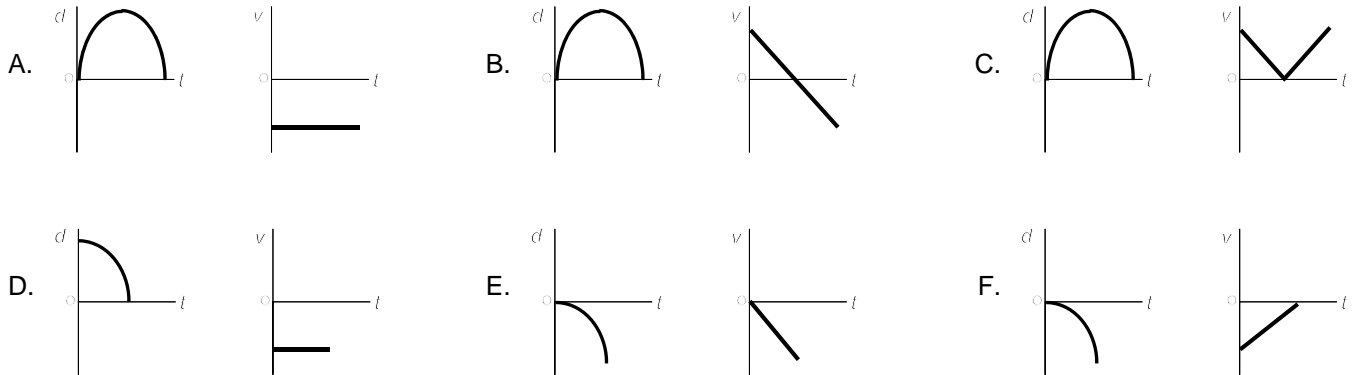
AP/Inquiry Physics

Write the letter corresponding to the best answer in the blank at the left of each question.

- _____ 1. According to Aristotle, a man weighing 150 pounds would fall to Earth how much faster than a boy weighing 50 pounds?
A. no faster B. 2 times as fast C. 3 times as fast D. 4 times as fast
- _____ 2. Galileo's *Discourses on Two New Sciences* contradicted that assertion. It was a conversation between...
A. Aristotle and Galileo.
B. three characters who each supported Galileo's theories.
C. three characters with each representing a different viewpoint.
D. science and religion.
- _____ 3. Which of the following quantities is a vector which changes signs (directions) when an object that was thrown upward stops rising and begins to fall?
A. velocity B. speed C. acceleration D. time
- _____ 4. A ton of feathers and a ton of bricks are dropped from the same height on the moon. What happens?
A. The feathers strike the ground first.
B. The bricks strike the ground first.
C. The feathers and bricks strike the ground simultaneously.
D. Nothing hits the ground, because there is no gravity on the moon.
- _____ 5. When an object that was thrown upward reaches its highest point, which statement is true?
A. The acceleration switches from positive to negative.
B. The acceleration is zero.
C. The total displacement is zero.
D. The velocity is zero.
- _____ 6. A stone is thrown upward from atop a cliff and then lands at the base of the cliff. Which statement is true if the upward direction is considered "positive"?
A. The initial velocity of the stone is negative.
B. The acceleration of the stone is positive.
C. The final velocity of the stone is positive.
D. The final displacement of the stone is negative.
- _____ 7. A ball is dropped (near the earth). How fast is it moving at the end of its first second of free-fall?
A. 0 m/s B. 4.90 m/s C. 9.80 m/s D. 19.6 m/s
- _____ 8. How **far** has the ball in the previous question displaced at the end of its first second of free-fall?
CALCULATE IT USING ONE OF OUR EQUATIONS!
A. 0 m B. 4.90 m C. 9.80 m D. 19.6 m

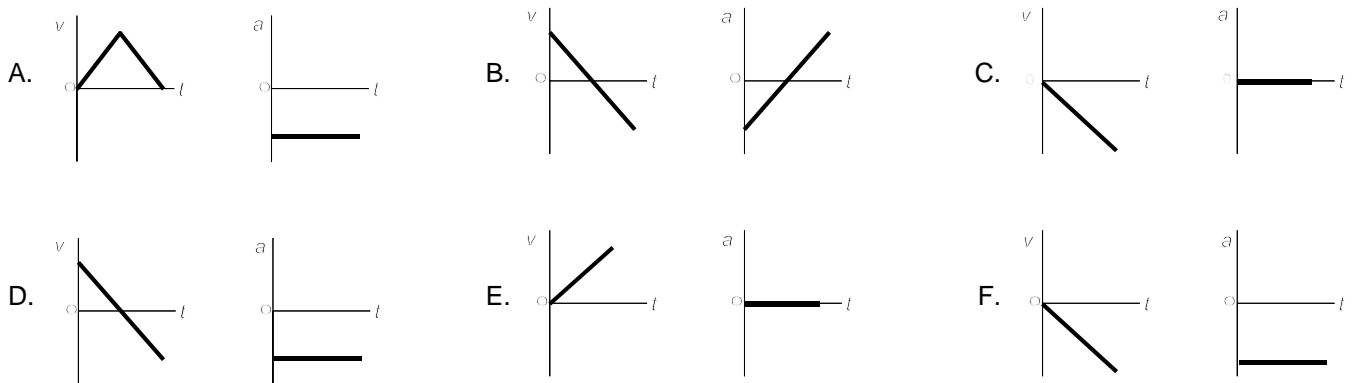
DO GRAPH QUESTIONS ON REVERSE

Questions 9 and 10 refer to the following six pairs of vertical motion displacement and velocity graphs:



- _____ 9. Which pair of graphs show the free-fall displacement and velocity of an object which is thrown upward and later caught at its original height?
- _____ 10. Which pair of graphs show the free-fall displacement and velocity of an object which is dropped from rest?

Questions 11 and 12 refer to the following six pairs of vertical motion velocity and acceleration graphs:



- _____ 11. Which pair of graphs show the free-fall velocity and acceleration of an object which is thrown upward and later caught at its original height?
- _____ 12. Which pair of graphs show the free-fall velocity and acceleration of an object which is dropped from rest?