

Phys 201 – First Midterm Test
September 25, 2008
1 hour and 15 minutes

Professor: Dr. Edward J. Brash

Rules and Regulations:

1. Calculators, with memory cleared, are permitted.
2. You may bring as many pencils, pens, and erasers with you as you like.
3. You may bring 1 (one) 8.5" x 11" piece of paper with formulas (both sides).
4. No other material is permitted.
5. The exam consists of 3 questions where you should present full solutions. The full solution questions are worth 10 points each (30 points total).
6. You should complete your solutions to the full solution questions on the exam paper itself.
7. Your solutions to the full solution problems should, in general, contain a combination of diagrams, equations, and English word sentences explaining your strategy and thought process.
8. In any problems involving gravity, use $g=9.80\text{m/s}^2$, if necessary.

STUDENT NAME: _____

STUDENT ID NUMBER: _____

SIGNATURE: _____

1. A person walks first at a constant speed of 5.20 m/s along a straight line from point A to point B and then back along the line from B to A at a constant speed of 3.50 m/s .

(a) What is her average speed over the entire trip? Explain your answer!

(b) What is her average velocity over the entire trip? Explain your answer!

2. A car accelerates at a rate of 4.50m/s^2 , from rest, to a final velocity of 35.0m/s . At this exact moment in time, the driver notices a police car at the side of the road, and IMMEDIATELY decelerates at a constant (but different!) rate to 20.0m/s . The TOTAL distance traveled by the care from start to finish is 160m .

- a) What is the distance traveled by the car during the initial acceleration?
- b) What is the acceleration of the car during the “deceleration” phase?

3. A student throws a set of keys vertically upward to her sorority sister, who is in a window 3.70 m above. The keys are caught 1.40 s later by the sister's outstretched hand.

(a) With what initial velocity were the keys thrown?

(b) What was the velocity of the keys just before they were caught?