DATE: NAME: CLASS:

CHAPTER 11 PROBLEM SOLVING

Acceleration Problems

BLM 11-3

Goal • Calculate the acceleration of objects that are moving in a straight line.

What to Do

Answer each question in the space provided. Assume that motion upward or to the right is positive. Assume that motion downward or to the left is negative.

1. Complete the following table.

t_i (s)	t_f (s)	Δt (s)	$\vec{v}_i$ (m/s)	$\vec{v}_f$ (m/s)	$\Delta\vec{v}$ (m/s)	$\vec{a}_{av}$ (m/s^2)
10	25		0	+12		
0	40		+50	+10		
12.5	41.6		−10.1	+32.4		
9.70	51.9		+43.7	−12.6		

2. A student starts from rest and reaches a velocity of 7.1 m/s to the right of the observer in 5.2 s. Find the student's average acceleration.

3. An airplane is flying at +210 m/s. It slows down to +165 m/s in 12.3 s. Find the acceleration of the airplane.

4. A puck is moving at +8.2 m/s on the ice. It is hit by a hockey stick for 0.25 s, causing it to move at +21.3 m/s in the same direction. Find the acceleration of the puck.

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CHAPTER 11
PROBLEM SOLVING

Acceleration Problems (continued)

BLM 11-3

5. A car starts from rest at a stop sign and accelerates to +50 km/h in 9.2 s. Find the acceleration of the car in m/s^2.

6. A ball is rolling along an incline at 7.2 m/s to the right. After 9.3 s, the ball is rolling at 3.9 m/s to the left. Find the acceleration of the ball.

7. At 3.6 s after the start of observations, a piece of a mass is falling at 4.2 m/s. It is attached to a piece of elastic. The elastic causes it to slow and eventually travel back up reaching 3.6 m/s at a time of 6.1 s. Find the average acceleration of the mass.