Name: Period:

Equations of Motion 2A: *a = ∆v/t*

*Show all work and include units*

1. The velocity of a car changes from 60 meters per second north to 45 meters per second north in 5.0 seconds. The magnitude of the car's acceleration is

2. A bicyclist accelerates from rest to a speed of 5.0 meters per second in 10 seconds. During the same 10 seconds, a car accelerates from a speed of 22 meters per second to a speed of 27 meters per second. Compared to the acceleration of the bicycle, the acceleration of the car is

3. A runner starts from rest and accelerates uniformly to a speed of 8.0 meters per second in 4.0 seconds. The magnitude of the acceleration of the runner is

4. The speed of a car is increased uniformly from 20 meters per second to 30 meters per second in 4.0 seconds. The magnitude of the car’s average acceleration in this 4.0-second interval is

5. During a 5.0-second interval, an object’s velocity changes from 25 meters per second east to 15 meters per second east.

a) Determine the magnitude of the object’s acceleration. Round your answer to the nearest tenth of a meter per second2.

b) What is the direction of the acceleration? [N, E, S, W]?

6. A car traveling at a speed of 13 meters per second accelerates uniformly to a speed of 25 meters per second in 5.0 seconds.

Calculate the magnitude of the acceleration of the car during this 5.0-second time interval.

Name: Period:

The Arsenal 2B: *a = ∆v/t*

*Show all work and include units*

1. An object that is originally moving at a speed of 20 meters per second accelerates uniformly for 5.0 seconds to a final speed of 50 meters per second. What is the acceleration of the object?

2. If an object's velocity changes from 25 meters per second to 15 meters per second in 2.0 seconds, the magnitude of the object's acceleration is

3. A car increases its speed from 9.6 meters per second to 11.2 meters per second in 4.0 seconds. The average acceleration of the car during this 4.0-second interval is

4. An object has a constant acceleration of 2.0 meters per second squared. The time required for the object to accelerate from 8.0 meters per second to 28 meters per second is

5. A skier starting from rest accelerates at a rate of 4.0 m/s2 skis straight down a slope 50 meters long in 5.0 seconds. What is the skier’s final velocity after 5 seconds?