Name: _____ Date: _____

m_r^β Physics Practice: Acceleration

1. An object is moving with constant acceleration. At time $t = 0$, its position is 0 m, and its velocity is 0 m/s. Five seconds later, it is moving 20 m/s.

a. Graph $a(t)$ vs. t, and write the equation for $a(t)$.

b. Graph $v(t)$ vs. t, and write the equation for $v(t)$.

c. Graph $p(t)$ vs. t, and write the equation for $p(t)$.

d. What is the average speed of the object between $t = 0$ and $t = 4$?

e. What is the average speed of the object between $t = 4$ and $t = 5$?

2. An object is accelerating at 10 m/s^2. At $t = 0$, it is at position $p = -40$ meters, and moving 20 m/s.

a. Graph $a(t)$ vs. t, and write the equation for $a(t)$.

b. Graph $v(t)$ vs. t, and write the equation for $v(t)$.

c. Graph $p(t)$ vs. t, and write the equation for $p(t)$.

3. An object at rest accelerates at 6 m/s^{2}for 4 seconds, then decelerates at 4 m/s^{2}for 6 seconds. Assume that $p(0) = 0$.

a. Graph $a(t)$ vs. t, and write the equation for $a(t)$.

b. Graph $v(t)$ vs. t, and write the equation for $v(t)$.

c. Graph $p(t)$ vs. t, and write the equation for $p(t)$.

d. What is the *average speed* of the object over the 10 seconds?