Kinematics graphs solutions

1. Person pacing back and forth
2. + 2 m/s
3. Zero
4. + 1 m/s
5. – 1.5 m/s
6. Speed of object
7. Speed 1 m/s velocity – 1 m/s
8. Speed 2 m/s velocity + 2 m/s
9. Speed 0.5 m/s velocity – 0.5 m/s
10. Dance step
    1. 0 – 2 Speed 1 m/s vel + 1 m/s
    2. 2 – 3 Speed 0 vel 0
    3. 3 – 4.5 speed 1.3m/s vel 1.3 m.s
    4. 4.5 – 6.5 2.75 m/s v – 2.75 m/s (-1.5 m/s – 4 m/s) / 2
    5. Average velocity 4.5 to 9 is slope of line joining those two points which is (-4/4.5) = - 0.89 m/s
11. Segment 0 – 4 a = + 2 m/s/s (slope)

4 – 10 a= 0

10 – 18 a = (0 – 8)/8 = - 1 m/s

½ (4x8) + (6x8) + ½ (8x8) = 96 m

1. Object in linear motion
   1. 0-1 a = 0
   2. 1 – 3 a = + 4 m/s/s
   3. 3 – 8 a (-12 – 8)/5 = - 4 m/s/s
   4. 8-9 a = (-4 – (-12))/1 = + 8 m/s/s
   5. 9 – 11 a = 0
   6. Last segment is constant velocity in the negative directioin
   7. Displacement = - 18 m
   8. Average velocity over entire interval = – .36 (slope of line from origin to end)
   9. At 3 and 8 object begins slowing down (or braking)
2. Motorcycle acceleration
3. + 2 m/s/s
4. 0 m/s/s
5. – 0.5 m/s/s
6. Horseback rider
7. ½ (10 )(2) = + 10 m
8. ½ (5)(4) + (2)(5) = + 20 m
9. ½ (10)(4) + (10)(2) = + 40 m